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THE CORRELATION OF UNIVERSITY RESEARCH *

T. B. HOLLOWAY, M.D.
PHILADELPHIA

There has been some criticism of the medical profession during the past twenty-five years for its tendency toward specialization; no comments are needed here as to why this has occurred. In this respect, medicine does not differ from engineering, chemistry, and to some extent the law. As far as the physical welfare of the patient is concerned, there is no doubt in my mind that it is better protected by specialization, especially with the increased efficiency in correlation. In my opinion, conditions could be still further enhanced by better bridging of the gap between the clinician and the research worker, and the much wider expanse that seems to exist in research between various special departments in our universities.

Today I expect to take full advantage of the prerogatives of the Chair to present a few thoughts that have interested me for a number of years and which were formulated and recorded some five years ago. These thoughts do not pertain strictly to ophthalmology or even to medicine but more strictly to university research in which the various branches of medicine would be included, and few more than the eye.

During the past ten years there has been some discussion as to whether research was not drifting away from our universities and centering in the laboratories of certain of the larger corporations. Many of us are not wholly in accord with this view, although we must realize that for obvious reasons these laboratories do harbor a splendid corps of research workers devoting their time to pure and applied science and with excellent results.

Within the past nine months most of us have heard of the importance and inconvenience of frozen financial accounts, but to estimate the number and importance of frozen scientific accounts is a more difficult matter. As is well known, most departments in the university of today maintain their own individual research laboratories; this is as it should be, but it seems to me that there might be a broadening of their endeavors so as to provide greater research contacts such as could be available in our larger institutions. Would it be possible to accomplish this by providing a centralized or university research laboratory administered by a small group of full time research workers, which laboratory would be available for research workers from any department of the university; in other words, full and part time departmental fellowships? In addition to these, facilities could be provided for certain industries without laboratory conveniences, should they desire to have certain problems investigated. Needless to say, the results of such investigations should be published.

While moving pictures have been used for scientific and teaching purposes to some extent for a number of years, their use has been distinctly limited and less than their real value would warrant. During the next five years their use will greatly increase. Therefore such a laboratory should include a moving picture studio available to any department of the university desiring to film scientific work, methods of procedure, and material for demonstration that would be suitable for scientific exhibition or teaching purposes. Needless to say, a research department pertaining to the various phases of this subject should be established. It might be difficult to designate appropriately such a laboratory as is here projected, but a "research laboratory of physics and chemistry" would probably best cover what I have in mind.

If there is value in correlation in departmental clinical work, why not in the broader sense of university research work? Such a laboratory would bring together under one roof investigators working on the same subjects, but each especially interested in the phase peculiar to his own department. It would permit of intimate correlation between various departments on certain problems that have a dual aspect. It would not interfere with departmental laboratories but would really supplement such work and, it is believed, would be a real stimulus to research. Would not such a laboratory with its multiplicity of contacts be a chosen field for graduate work in pertinent medical research? From this constant "rubbing of elbows" would not both science and investigator be benefited?

Such a laboratory would deal with acoustic energy and the whole range of radiant energy from the infrared to the more recently discovered Millikan rays. This would include all phases of illumination, health problems as these relate to the curative or injurious effects of various types of radiation, x-rays, and the many phases pertaining to radio communication, the telephone and the phonograph, vocal and instrument music, and inorganic, organic and biochemistry. There is much that is desirable still to be accomplished in the movies, such as the perfection of color films, the third dimension and the correlation of sound. The coordination of the voice with television opens up a field for investigation for years to come.

As to chemistry, our greatest interest is in the biochemical phase. For some years I have pointed out to many of the younger men with whom I have come in

* Chairman's address, read before the Section on Ophthalmology at the Eighty-First Annual Session of the American Medical Association, Detroit, June 25, 1930.

contact the possibilities of this science in ophthalmology. Until a few years ago but little work had been done in this subject; the one from which will emanate, unless I am much mistaken, the real advances in the ophthalmology of the future. From this source will come the facts that will influence the medical and surgical treatment of such conditions as cataract, certain types of glaucoma and other ocular diseases. While I am aware that splendid work has been and is being done in chemistry as well as the other sciences in the departmental laboratories, I still feel that both the investigator and the science which he represents would be benefited by more intimate working contacts and the exchange of ideas and knowledge that these provide.

The possibilities of this conception are too numerous and too evident to detail to a group of my peers, but I merely desire to point out that such a project would have its relationship and interest to practically all industries, from that of the one great national industry that fosters child labor, the public school, to our largest corporations of whatever character, as well as to all professions. As remote as it may seem, it is conceivable that the construction engineer, the architect, the aurist, the musician and the electrician have certain problems in sound wherein experimental work would profit by an exchange of thoughts peculiar to their individual pursuits, yet pertinent to their common interest. So, too, we can conceive that the comparative studies of the influences of visible and invisible light on the products and pathology of animal and plant life would afford interest to most branches of medicine, the biologist, botanist, psychologist and chemist. From a medical standpoint, not a respectable surface scratch has been made on the adaptability of the movies in physiologic, bacteriologic, experimental or microscopic work in general. But this is sufficient briefly and grossly to project my thoughts, and those who might be interested can readily conjure up others. To those who are not interested, I offer as an excuse for presenting this subject the fact that if the optical properties of the eye, so admirably adapted to one of the types of energy to which I referred, should be eliminated, little would remain that appeals more than in any other organ in the body; and most pathologic manifestations of the eye are secondary to diseases originating in adjacent or distant organs. Ophthalmologists are a unit in the science and art of medicine, and as such should be interested in the welfare of medical science as a whole. Should this link that binds us to medicine be broken, my interest in the subject to which I have devoted many difficult but happy hours would cease.

1819 Chestnut Street.

Anatomy.—The day when the medical student enters the dissecting room is the time of dedication to his profession; for then he puts his hand to a task which other men dread, and joins the company of those who had laid aside the deepest fears and prejudices of mankind, to seek in the dead bodies of their fellows some increase of knowledge wherewith to fight the ignorance and disease that laid them low. As he undertakes his share of this work, the student of anatomy engages in one of the oldest of the sciences. He is following a tradition of twenty-five centuries; and if he is sensitive to such influences, the burden of his work will be lightened and his effort will be quickened by a sense of pride that he is one of that profession whose history is an endless record of hard-won progress from darkness towards the light. Whether we feel it thus keenly or not, however, the influence of the past inevitably guides our hands as we work.—Corner, G. W.: Clio Medica—Anatomy, New York, Paul B. Hoeber, Inc., 1930.

THE PRESENT STATUS OF NONSPECIFIC THERAPY

THE FRANK BILLINGS LECTURE *

JOSEPH L. MILLER, M.D.
CHICAGO

About twenty years ago I dined with a surgeon from California. This was during the heyday of specific vaccine therapy. We discussed the use of vaccines and especially their shortcomings. He had a theory that the poor results were due to the rôle played by mixed infections in this group of diseases and thought that greater benefit could be obtained by using mixed vaccines. He was a horse fancier, and an epidemic of epizootic gave him an opportunity to apply his theory. He transferred some of the nasal secretions from a sick horse to a beer bottle containing beef tea, which he then incubated. After obtaining a number of such cultures, he poured them all into a flask, sterilized them by heat, filtered them and used this filtrate intravenously. He claimed that by this treatment epizootic could be promptly aborted.

He then took pus from his septic surgical patients, again using his beef tea and beer bottle, finally mixing all his cultures, sterilizing them by heat and filtering. The sterilized filtrate was put up in small bottles holding between 5 and 10 cc. He showed me records of a number of patients suffering from acute febrile conditions, in whom the disease had apparently subsided after one or two intravenous injections. He advised, however, that the treatment be given daily until the patient no longer reacted with a chill.

He did not lay any claim to a knowledge of bacteriology, but I was impressed by his keen powers of observation and his apparent honesty. He asked me to try out his remedy. The day following, we visited the county hospital for the purpose of using his vaccine on some patients with acute arthritis. He assured me that he had never observed any untoward results.

Two patients with acute polyarthritis and one with a gonorrheal infection of the knee were given an intravenous injection of this vaccine. The following day we revisited the hospital. He was optimistic; I skeptical. I was surprised, however, to find all of his patients free from pain and swelling and with practically all evidence of the disease gone. The Negro patient with the gonorrheal arthritis, in spite of having broken a tooth during the chill, was jubilant, as the pain and stiffness in the knee had quite disappeared. This was my introduction to nonspecific therapy.

He left me a liberal supply of his vaccine, and shortly after this he disposed of his product to a wholesale drug manufacturer, who placed it on the market under the trade name of Phylacogen.

As autogenous vaccines were the vogue, this treatment was distinctly unorthodox. However, the favorable effect of the vaccine was undeniable. A few years later, in 1914, two articles appeared almost simultaneously, one from Japan and the other from South America, which at least in part cleared up this enigma. Ichikawa reported that typhoid could be aborted by the intravenous injection of either typhoid or paratyphoid vaccine. Kraus and Mazya from Argentina reported that colon bacillus vaccine, given intravenously, would

* Read before the Section on Practice of Medicine at the Eighty-First Annual Session of the American Medical Association, Detroit, June 27, 1930.

abort typhoid. This marks the beginning of nonspecific vaccine therapy. The following year Lüdke demonstrated that the same results could be obtained by using a solution of proteose. Hence the name "protein therapy."

PROTEIN THERAPY

More recently, numerous agents have been recommended as having a common property—the ability to cause a marked febrile reaction. Apparently, it is a matter of indifference what substance is employed, as it is the reaction, and not the agent causing it, that is responsible for the results.

It is believed that this reaction promotes the mobilization of both specific and nonspecific immune bodies. It is quite probable that the body has a reserve store of nonspecific antibodies for emergencies. It is not improbable that the initial chill of an acute infection may be a purposeful reaction. Old medical literature contains numerous references to the beneficial effects of a secondary infection in acute diseases. An attack of erysipelas might benefit tuberculosis of the skin or syphilis.

In 1883, Fehleisen reported the cure of lupus following the local injection of a pure culture of streptococci from a case of erysipelas. Emmerich, in 1886, was able to save animals with anthrax by the intravenous injection of living streptococci. Powlowski, a student of Virchow's, observed similar cures in anthrax following the injection of cultures of the bacillus of Friedländer, *B. pyocyaneus,* and other bacteria. Buchner, in 1890, showed that killed cultures of these bacilli were equally efficient. Following Frankel's report on the value of typhoid vaccine given subcutaneously in typhoid, Rumpf demonstrated that the same results could be obtained by repeated intramuscular injections of large doses of pyocyaneus vaccine.

The great improvement in psychiatric patients, following some intercurrent acute infection, led Wagner Jauregg, forty years ago, to attempt to duplicate this infection in patients with dementia paralytica. Finally, after many years of patient effort, he was able to report the startling results he had obtained by inoculating the patient with malaria.

It is reported that Hippocrates and Galen recognized the beneficial results of fever in psychosis. Boerhaave and Sydenham reported similar observations. Among the various intercurrent infections reported to have served this purpose are: typhoid, typhus, intermittent fever, cholera, smallpox, erysipelas, scarlatina, measles, pneumonia and chronic suppurative processes. Koster, in 1848, reported psychoses in patients, several of whom recovered following an attack of relapsing fever. Kostl, in 1853, reported a cure or, at least, great improvement in a case of dementia paralytica after the patient had had smallpox. Schlager, in 1857, reported six psychotic patients out of eleven cured after having had typhoid. Many more observations of a similar character are reported by Gerstmann in his monograph on the treatment of dementia paralytica by malarial inoculation.

Protein therapy has been employed in nearly all acute and chronic diseases of supposed bacterial origin. At present it is used especially in acute polyarthritis, gonorrheal arthritis, the infectious type of chronic arthritis during the period of more or less active inflammation, acute iritis, corneal ulcer, thrombo-angiitis obliterans, bacillary dysentery, dementia paralytica, and multiple sclerosis.

Probably the most dramatic results are observed in acute polyarthritis, and it is safe to say this is the only method of treatment that can immediately terminate this disease; at least 50 per cent of patients can be promptly relieved of their discomfort. About one half of them are cured; the others, after a few days or occasionally a week or more, have a recurrence. In the others the immunity is complete. Whether the immunity is complete or partial is an individual affair, dependent on the patient's ability to store or mobilize immune bodies. If the patient shows a good response to the first two reactions, the treatment is continued at two-day intervals until five doses have been given. I have tried continuing the treatment after all symptoms have subsided, in the hope that recurrences might be lessened, but without success. In case no improvement is noted after two good reactions, the treatment is discontinued, as rarely will longer continued treatment prove beneficial.

In the early stages of chronic atrophic arthritis, in which there is marked evidence of inflammation, this treatment will occasionally give gratifying results, terminating the disease, occasionally permanently, more frequently for a few months, after which it again becomes active but will usually yield to a second course of treatment. I have had a few patients in whom there has been no evidence of recurrence after several years, with the characteristic spindle shaped fingers remaining as evidence that the diagnosis was correct.

It is highly improbable that protein therapy is of permanent value in osteartritis, as mechanical irritation, rather than bacterial infection, is the important etiologic factor.

As thrombo-angiitis obliterans is due to an inflammatory reaction, probably of bacterial origin, it offers a field for protein therapy. If this treatment is begun early in the course of the disease, the results may be most gratifying. Not only is its progress stopped, but the patient may show great improvement in his ability to walk without discomfort; in fact, the pain may entirely disappear, although in no instance in which the dorsalis pedis is obliterated have I observed a return of the pulse. The treatment, however, may stop the inflammation in some of the collateral vessels, with subsequent return of function. A patient who had this disease in one foot was treated with typhoid vaccine; the symptoms all subsided. Several years later the disease appeared in the other foot. In the more advanced cases, transitory relief due to vasodilatation may be observed.

In southeastern Europe, protein therapy has been used quite extensively in the treatment of bacillary dysentery and is reported to be much more efficient than the dysentery serum.

I have used immunized chicken serum, normal chicken serum and immunized sheep serum in the treatment of pneumonia. These serums frequently, but not always, gave a chill. It was noted that when the patient failed to react by a rise in temperature there was no change in the course of the disease. Occasionally, after a violent reaction, the disease would terminate by crisis. The immunized chicken serum, after the fibrin was removed, would no longer cause a marked change in temperature and failed to modify the course of the disease.

I thought it might be of interest to determine whether a single small dose of typhoid vaccine intravenously, sufficient to give a moderate reaction, would modify the course of pneumonia. Fifteen patients with lobar pneu-

monia were so treated within forty-eight hours of the onset of the disease. Three of these, or 20 per cent, had an immediate and lasting crisis with disappearance of all symptoms. The lung, however, failed to undergo resolution until the regular time for the crisis. This experiment was made, not for the purpose of advising this treatment in pneumonia, but merely to remind those interested in pneumococcous serum that recovery following a serum, if accompanied by a rise in temperature, was not evidence of the specific reaction of the serum.

The greatest interest in protein therapy is now centered in its use in the treatment of dementia paralytica. Although others had observed striking improvement in dementia paralytica following various acute infections, Wagner-Jauregg—if not the first—was the most persistent in imitating nature's method. He first tried to inoculate patients with erysipelas but was able to cause only a circumscribed infection in the skin. He next used tuberculin but was unable to obtain repeated marked changes in temperature. However, he persisted in this treatment and after ten years reported the results in sixty-nine patients. He thought that he had been able in many of these to produce more frequent and more prolonged remissions but no cures. He then tried larger doses of tuberculin. With this modification, he obtained a few lasting remissions; the patients were able to leave the institution and return to work. Whether the improvement was permanent in any of these cases is not recorded.

Later, Wagner-Jauregg used Besredka's polyvalent typhoid vaccine, which contained living typhoid bacilli whose virulence had been reduced by mixing with typhoid immune serum. This vaccine was given intravenously in increasing doses. The frequency, degree and duration of the remissions were much better than with tuberculin.

He inoculated his first patients with malaria in 1917. Two of the four patients who were treated at this time, and who showed marked improvement, were still working at their former occupations in 1925.

It has been shown that, by using typhoid vaccine and rather rapidly increasing the dose, chills can be produced at required intervals extending over a period of several weeks. Dr. George Hall has fever curves from typhoid injections that compare favorably with those following malaria, and the results should be equally favorable. The fever of malaria is of protein origin, caused by the escape of protein into the circulation as the parasite leaves the red blood corpuscle. The typhoid vaccine has distinct advantage over that of malaria, as the patients do not become anemic, and the interval between chills can be regulated.

The number of recoveries reported from malarial treatment varies from 30 to 40 per cent; that is, patients who are able to return to their previous occupations.

Multiple sclerosis is another disease in which protein therapy is being used extensively. There is a difference of opinion with regard to the infectious character of this disease. The improvement reported following this form of therapy speaks for its bacterial origin. Recently Kathleen Chevassut, working in the Westminster Hospital, obtained a filtrable virus from the spinal fluid in 176 out of a total of 186 cases.

Gerstmann, a student of Wagner-Jauregg's, treated one series of patients with malaria; another with typhoid vaccine. The typhoid series included twenty-nine patients of the chronic progressive type, none of whom had shown any tendency to remissions. Twenty-seven per cent of this group showed marked improvement. Forty-two patients were treated by inoculation with malaria. In the recent acute forms, marked improvement was noted in 26 per cent and moderate improvement in 46 per cent. In the chronic progressive type, 16.6 per cent were definitely improved. After the treatment was discontinued, the improvement was progressive and up to the time the report was made there was no relapse.

Dreyfus and Hanau treated two series, one with typhoid, the other with malaria. In the typhoid series of ten cases, each patient received twenty injections of typhoid vaccine. Seven of these patients were of the chronic progressive type. Two of this series were definitely improved, with no tendency to relapse after a period of seven months. The patients with a history of remissions were all much improved. One was able to return to her previous occupation of modeler. In the series treated with malaria, ten were of the chronic progressive type. Two of these were greatly benefited and nine definitely improved. All of the patients had been under observation from one to five years and had never had a spontaneous remission.

This new field for nonspecific therapy deserves continued trial. If the treatment is begun early, before irreparable tissue changes have taken place, complete recovery may be possible. It is too early to predict the permanence of the improvement. It is possible that other chronic neurologic diseases may be amenable to this form of treatment.

CHEMOTHERAPY

Dale [1] defines chemotherapy as the specific treatment of infection by artificial remedies. If we accept this definition, chemotherapy had its beginning centuries ago. The discovery of all our older specific drugs was the fruit of prolonged experimentation. Uncivilized peoples apparently believed that the vegetable kingdom held curative remedies. Repeated trials, and, finally, an observation that a decoction from a certain herb or tree favorably affected the disorder, probably explains the discovery of ipecac, quinine and chaulmoogra oil.

Ehrlich's conception of chemotherapy was the production by synthetic chemistry of substances that were toxic for the parasite but harmless to the cells of the host. We are all familiar with the success of his efforts in producing substances capable of destroying the parasite invaders. There is a growing belief, however, that the method of action of these substances was not by directly destroying the parasite. No one questions his results, but doubt is cast on his hypothesis.

H. H. Dale, the English pharmacologist, has been a leader in questioning this hypothesis. He has many disciples who believe with him that these agents are not directly parasiticidal but act as cellular stimulants resulting in the production of something that destroys the invader, thus somewhat resembling protein therapy in action.

Dale and Dobell [2] studied the effect of emetine on *Endameba histolytica,* the recognized cause of amebic dysentery. It is difficult to picture the destruction of these parasites by any direct action following the hypodermic injection of eight or ten small doses of emetine. They were able to demonstrate that some strains of *Endameba histolytica* were not killed in vitro by a

1. Dale, H. H.: Physiol. Rev. **3**: 359 (July) 1923.
2. Dale, H. H., and Dobell, C.: J. Pharmacol. & Exper. Therap. **10**: 399 (Dec.) 1917.

1:1,000 solution of emetine; although able to live several hours, they would not multiply. In weaker dilutions (1:5,000 or 1:10,000) the ameba would survive several hours. Methyl psychotrine, another alkaloid of ipecac, is much more toxic to the ameba in vitro but is not of value in the treatment of amebic dysentery. The harmless *Endameba coli* and *nana* are not destroyed by any of the alkaloids of ipecac. Dale calls attention to the fact that *Endameba histolytica* is the only one of these that invades and multiplies in the tissue of the host, and suggests that this might indicate that emetine acts on the host with prevention of tissue invasions. As other investigators have failed to confirm Dobell's results, the experiments have been repeated.[3] In their first experiments they used a medium containing coagulated egg albumin. In this medium the emetine disappeared after incubation; apparently, it entered the solid egg albumin. In a medium of horse serum and Ringer's solution, the amebas were destroyed after four days' incubation in a dilution of 1:750,000. They found that the p_H of the medium had a decided effect on its amebicidal activity—an acid environment lessening the activity of the emetine.

With the marked tendency for the emetine to become inactive in the presence of coagulated albumin, it is a question how much of it reaches the large bowel in an active state. As its activity is modified by so many factors, it is safe to say that, up to the present time there is no satisfactory evidence that its therapeutic activity is due to its direct amebicidal action.

Extract of chaparro amargoso has no effect on *Endameba histolytica* in vitro but is of decided value in the treatment of the disease. Acetarsone (stovarsol) is only mildly amebacidal in vitro but destroys the ameba in the host.

Malaria.—Quinine added in vitro to blood containing the plasmodia fails to support the view that its action is directly parasiticidal. It is quite certain that the amount of quinine in the blood after the usual dosage will not directly destroy the plasmodia. Several hypotheses have been evolved to explain its mode of action. Morgenroth evolved the conception that the quinine is fixed to the red blood corpuscle, acting by destroying the parasite within or by blocking its entrance into the corpuscle, thus interfering with the asexual cycle. Morgenroth's view that quinine has an affinity for the corpuscle has not been verified. The method of action of quinine has not been determined. If its direct action can be ruled out, it becomes necessary to introduce the host as an important factor in the destruction of the plasmodium.

Mercury.—When a gumma is seen to disappear after a fortnight's treatment with one-fourth grain (16 mg.) of yellow mercurous iodide three times a day, it would require an imaginative mind to believe that, even if the mercury were converted in the body into mercuric chloride, this small amount could destroy *Spirochaeta pallida*.

Arsenicals.—Trypanosomes and *Spirochaeta pallida* respond in much the same manner to arsenic and to bismuth. The dyes, however, act only on the trypanosomes. Neoarsphenamine is very slightly spirocheticidal in vitro. The spirochetes will live in dilutions of 1:5,000 and when transferred to a fresh culture medium will grow in a normal manner. A 70 Kg. man receiving 0.5 Gm. of this drug would have a blood concentration of less than 1:10,000. This dilution would quickly weaken, as the arsenic is rapidly excreted through the kidney. Ehrlich attempted to explain the action of arsphenamine by its conversion in the body to the highly spirocheticidal arsenoxide. It has not been determined that this chemical reaction takes place. If it were definitely established, it would mean that the host was playing a rôle in activating the drug.

Levaditi claims that atoxyl has little effect in vitro on the trypanosomes. If, however, he made an extract of fresh liver, added atoxyl to it and incubated the mixture for three hours, it became highly trypanocidal. He believes that the arsenic enters into combination with tissue albumins, resulting in the formation of a toxalbumin that is parasiticidal. Uhlenhuth takes the view that the arsenic stimulates the host cells to liberate an antibody-like substance.

Bismuth is a valuable remedy in syphilis. No salt of bismuth is more than mildly parasiticidal. If we accept Ehrlich's hypothesis of the conversion of arsphenamine into the parasiticidal arsenoxide, another explanation would be required to explain the action of bismuth. It is highly probable that eventually it will be shown that the mode of action of these two chemicals is alike. Levaditi found that liver extract from different species would activate the arsenic, but to a different degree. Different organs in the same animal possess this quality in varying degrees. The liver of the guinea-pig was less active than the liver of fowls or of rats. The whole blood, blood serum, red corpuscles or leukocytes were inactive, as were egg and yeast.

This varying activating power of organs might explain the selective action of drugs. Tryparsamide, which is of value only in syphilis of the central nervous system and especially in dementia paralytica, might be activated only by brain tissue. In the late stages of trypanosomiasis, i. e., when the organism has invaded the central nervous system, atoxyl is useless, although it is valuable in the earlier stages of this disease. Tryparsamide, however, will destroy the trypanosomes in the central nervous system, at least in a considerable number of patients.

Bismuth.—Levaditi,[4] who introduced bismuth in the treatment of syphilis, repeated the experiment he had made with atoxyl, using *Spirochaeta gallinarum*. None of the salts or the pure metal have more than a weak action on spirochetes in vitro. When an animal was given bismuth intravenously and blood was withdrawn at four-hour intervals, the serum was not spirocheticidal. When mixed with cell free liver extract and incubated for a few hours, it become highly spirocheticidal. This suggests that some cell constituent played a rôle in the activation. He found finely powdered metallic bismuth more efficient than any of the salts. Only a fraction of a milligram of bismuth was required to activate 5 cc. of liver extract. He believes that bismuth unites with the tissue extract to form a complex colloidal bismuth which he names bismoxyl.

This active substance will pass through a porcelain filter, but is nondialyzable and is destroyed by a temperature of from 80 to 100 C. Liver placed in boiling water for five minutes still retains this property to a high degree. Prolonged boiling renders the liver inactive. It is resistant to dessication, retaining its activity without notable change when kept at laboratory temperature for 125 days.

3. Laidlaw, P. P.; Dobell, C., and Bishop, A.: Parasitology **20**: 207 (July) 1928.

4. Levaditi, Constantin: Le bismuth dans la traitement de la syphilis, Masson et Cie, Paris, 1924.

S. Lumholt has shown that in animals, following the injection of bismuth, the blood serum enters into combination with the bismuth. It is bound so firmly to the serum that it cannot be separated by washing. The purpose of this union is not known, but apparently it has something to do with its spirocheticidal activity.

The arsenicals, if given in doses too small to destroy the trypanosomes, lead to the development of resistant strains which cannot be destroyed by larger doses of the drug. When such a resistance has been developed in a mouse, and the trypanosomes are transferred to a rat, the resistance disappears. Such a strain, after forty passages through rats, will regain its resistance immediately if transferred to a mouse. Apparently, the host or species of animal must play the primary rôle in creating this resistance. If one wished to speculate, one might say that the parasite had acquired a resistance to the hypothetic combination of arsenic and mouse protein but was not resistant to the combination of arsenic with rat protein.

Not only does Bayer 205, a naphthylamine-sulphonic acid of undeclared composition used in the treatment of trypanosomiasis, destroy the parasite, but following this the animal is immune to reinfection for several weeks or even two or three months. In vitro, even in a concentration of 1 : 100, from twenty-four to forty-eight hours is required to immobilize the trypanosomes. A dose of 50 mg. per kilogram will sterilize the blood of an infected animal in sixteen hours. In order to accomplish this, the drug must either be changed in the body to render it more trypanocidal or it acts on the cells of the host, resulting in the formation of an immunizing substance.

Very small amounts of Bayer 205 will protect animals from infection. This is presumptive evidence that it acts as a cellular stimulant.

Reference has already been made to the immunity of weeks or months after treatment with Bayer 205. During this period the serum of the animal or extracts from its organs possess curative properties. This might be accounted for by the possibility of the drug being retained in the tissues. It is more probable, however, that the tissue of the host is responsible for this immune substance.

There is other evidence that the host plays an important rôle in the activity of Bayer 205. This drug will destroy the trypanosomes in one species of animal, while a different species infected with the same trypanosome may be resistant to it. Trypanosomes are easily destroyed in the mouse but are affected little if at all in the horse and ox. The apparently harmless natural infection of wild rats with the trypanosomes is likewise not affected by Bayer 205.

Trypan red will destroy the trypanosomes in the mouse but is useless in rats infected with the same strain.

With the development of chemotherapy by Ehrlich, it was believed that a method had been evolved for the scientific study of specific drugs. Ehrlich and his followers succeeded in making arsenical compounds which were of great value in the treatment of syphilis and trypanosomiasis. He also produced dyes that are effective in trypanosomiasis and other protozoal tropical diseases. No one questions the value of these agents, but perhaps here, as has happened many times before, a valuable discovery was made by following a wrong hypothesis.

122 South Michigan Avenue.

STUDIES OF FEMALE GENITAL HYPOPLASIA

I. A PRELIMINARY SURVEY OF THE PROBLEMS INVOLVED *

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Hypoplasia of the female reproductive organs is a common condition, as every gynecologist can attest. Its incidence has never been exactly determined. In a consecutive series of fifty unmarried adult women, some degree of hypoplasia was observed five times. Of 100 wives whose marriages were sterile, 42 were demonstrably hypoplastic. Among parous women, on the other hand, the condition is seldom seen.

The chief importance of genital hypoplasia lies in the subnormal fertility which it necessarily induces. Present in about 40 per cent of sterile matings, it probably assumes major proportions in the causation of at least half that number; if so, hypoplasia may be considered a definite barrier to fertility in some 400,000 American marriages. When conception does occur miscarriage is common, and in cases going to term uterine inertia and postpartum atony are often encountered. Other symptoms are dysmenorrhea and amenorrhea, and at times excessive flowing.

In spite of the frequency of hypoplasia and its obvious importance, it has engaged the interest of the medical profession hardly at all. The subject receives only casual mention in the textbooks, and the current literature on it is almost nothing. Physicians appear ready enough to make, rightly or wrongly, a diagnosis of "infantile" uterus; present-day treatment, however, is worthless as applied to the established adult case, while the important opportunity of applying preventive treatment in the adolescent case is altogether neglected.

About a year ago my co-workers and I came to feel that, in view of the facts just stated, a systematic investigation of pelvic hypoplasia might be productive of useful results. There are numerous possible lines of approach, all of which tend to converge on certain definite problems. Disregarding the question of incidence as mainly of academic interest, we have for consideration five problems of practical importance. These are: etiology; diagnosis and curative treatment of established hypoplasia in adult women, and recognition and prophylactic treatment of threatened or incipient hypoplasia in adolescent girls.

ETIOLOGY OF GENITAL HYPOPLASIA

We are at present in no position to make dogmatic statements about the causation of these developmental arrests. Nevertheless, a reasonable basis for opinion is afforded by certain established facts.

There is an abundance of evidence, both clinical and experimental, to indicate that growth and development are under the immediate control of the endocrine glands. Severe endocrine failure in childhood leads to conspicuous retardations, of which cretinism and dystrophia adiposogenitalis are well defined examples. In these extreme instances the hypoplasia is general as well as genital. In cases of milder endocrine failure the developmental deficiency may be limited to the

* This paper is the first of a series of reports on an investigation undertaken by the Boston University Commission on Sterility. The studies are being conducted by the Department of Gynecology of the Boston University School of Medicine, with the collaboration of the Evans Memorial for Clinical Research and Preventive Medicine.

genital organs. An endocrinopathy that occurs just before or during the adolescent years seems likely to have this limited effect, since the reproductive system is the only part of the body which is normally undergoing active differential development at that epoch.

The foregoing ideas are further supported by the fact that the direct study of girls with delayed menarche commonly gives objective evidence of an endocrine malfunction. Thyroid failure is sometimes encountered, but in the great majority of such cases the endocrinopathy is an insufficiency of the anterior lobe of the pituitary. This observation is entirely in keeping with recent studies of the physiology of the pituitary, which ascribe to that gland the rôle of activator or motor of the ovary. In hypoplasia the ovary itself is never primarily at fault.

In studying a group of delayed adolescents, one is also impressed with the relatively high incidence of non-endocrine conditions of a generally debilitating character. Among these are focal infections, congenital syphilis, rickets, anemia, diseases of the central nervous system, unbalanced nutrition and faults of hygiene. It seems that such influences contribute to developmental retardation. Whether they do so directly, or indirectly by inducing an endocrine depression, is a question.

DIAGNOSIS OF HYPOPLASIA IN ADULTS

In the histories of adult women whose genital organs are hypoplastic, two items are prominent—menstrual disorders and low fertility. Such symptoms are, however, far from pathognomonic; they may be absent in hypoplasia and are frequently present in normally developed women as the result of other conditions. The most significant detail of the history appears to be any derangement of the menstrual function during adolescence, and in particular delayed onset.

General physical examination often fails to show evidence of retardation; indeed, many women in this group are strikingly well developed as regards their general status. In a fair number, however, there are obvious stigmas of an earlier inadequacy, such as a disproportion between the trunk length and the limb length, a masculine distribution of hair, and a tendency toward middle third or generalized obesity.

Metabolic tests and other vital function evaluations usually show little or no deviation from the normal. We believe that most of these patients suffer a phase of endocrine insufficiency during the critical period of adolescence. In the majority of cases, the phase is transient only, and a normal glandular balance is soon reestablished. Thus the adult woman may give no evidence of persisting endocrine malfunction, although there is a permanent residuum of the old disturbance in the form of imperfectly developed genital organs.

Local examination reveals characteristic stigmas in almost every case. The vulva is sometimes hypoplastic but more commonly normal. The ovaries often contain follicular cysts, since the oogenetic function is defective; in the more extreme cases the ovaries may be of the elongated and lobulated fetal type. The tubes are not unlikely to present a congenital impermeability. It is in the uterus, however, that one encounters those signs which are at the same time most distinctive and most accessible to the examiner. The organ as a whole tends to be slightly below normal size. The postion of the corpus is variable; the long and conical cervix is anteflexed because of the shortness of its anterior attachments, the so-called Goffe's fascia.

The constant anatomic feature of the hypoplastic state is relative length of the cervix and relative shortness of the uterine body. The cervix constitutes about two thirds of the infantile uterus and only one third of the normal adult organ. In hypoplasia the proportions range between these extremes. I described a uterine index [1] which expresses the ratio of corpus to cervix. Measurements are taken in the living patient with a modified uterine sound; we also have observations on autopsy material. Representing the length of the entire uterocervical cavity by U and that of the cervical canal by C, the index is calculated according to the formula $\frac{1}{2}\left(\frac{U-C}{C}\right)$. The resulting figure is 0.25 for infantile and 0.75 for normal adult uteri. Intermediate figures represent the various degrees of hypoplasia, which can thus be quantitatively evaluated.

TREATMENT OF HYPOPLASIA IN ADULTS

From time to time there have been desultory attempts to treat established hypoplasia in the adult woman. The methods employed fall into two groups, local and constitutional.

Local methods have included electricity, heat, massage, dilation and packing. All such assaults on the hypoplastic uterus are obviously futile, for they do not influence the associated hypoplasia of the ovaries, which is the really important item in the picture. Surgery may eliminate the secondary results of subnormal function, particularly inspissation of the endocervical mucus and formation of follicular cysts in the ovaries, but is powerless to correct the hypoplasia which primarily occasions functional subnormality.

Constitutional treatment in recent years has consisted mainly of endocrine medication. Two reasons are apparent for the uniform failure of this type of therapy. The first is that the exhibition of glandular products in ordinary practice is more or less haphazard, the patients often receiving preparations that are nonspecific, inadequate or inert. Another and a more fundamental reason lies in the disappearance of the growth impulse at the close of the adolescent period. If the developmental urge is dead, neither by taking thought nor by giving glands can one reasonably expect to add a cubit to the stature.

Although at present no method is known whereby hypoplastic organs in the adult patient can be stimulated to complete their development, the problem should not be abandoned as hopeless. In some few cases, at least, the growth impulse appears to be dormant rather than dead for many years after adolescence. It is sometimes reawakened by the stimulus of a normal sex life, and always by the influence of a pregnancy. The mechanism of such phenomena requires to be studied with a view to discovering how the results can be duplicated. Possibly a better understanding of pituitary function will provide the means, either of evoking directly a postpubertal phase of pelvic development, or else of promoting oogenesis so that pregnancy with its favorable effect may become relatively frequent in hypoplastic cases.

DIAGNOSIS OF HYPOPLASIA IN ADOLESCENTS

Incipient or threatened hypoplasia in adolescent girls must be diagnosed by indirection. We believe that the diagnosis is strongly suggested, and is for practical purposes to be made, if the patient exhibits a com-

1. Meaker, S. R.: A Uterine Index of Development: The Definition of a New Diagnostic Sign, Boston M. & S. J. **196**: 615-616 (April 14) 1927.

bination of two items—abnormal menstrual behavior, and demonstrable constitutional depression.

The relation between conpubertal menstrual disturbance and incipient genital hypoplasia is not yet conclusively demonstrated but is probable beyond any reasonable doubt. There is justification in assuming that an immature uterus and semidormant ovaries are unlikely to function normally. In adolescent girls, however, abnormalities of the menstrual function are commonly associated with constitutional disturbances.

With reference to the present problem, any type of conpubertal menstrual abnormality is worthy of attention. Dysmenorrhea is probably of least significance. Irregular interval, scanty flow, and secondary amenorrhea are obviously indicative of functional inadequacy. Puberty bleeding usually suggests imperfect oogenesis. The most important type of menstrual disturbance is, in our opinion, delayed menarche. The onset of menstruation occurs before the fifteenth birthday in about 80 per cent of American girls, and before the sixteenth in 88 per cent. Many of the residual 20 per cent, and most of the residual 12 per cent, can be demonstrated to have constitutional disabilities capable of retarding development.

Menstrual misbehavior is nearly always the symptom that first draws attention to the need for thorough investigation of these cases. The necessary study then comprises history and general physical examination, and laboratory tests designed to evaluate the vital functional level from the endocrine point of view.

Local pelvic examination is generally uninformative in the adolescent case so far as hypoplasia is concerned. Its main value would lie in ruling out such rare conditions as pseudohermaphroditism and imperforate hymen, and in the occasional identification of some incidental abnormality. Everything considered, the most practical plan appears to be the omission of all routine local examinations. In a few selected cases, inspection of the vulva or recto-abdominal palpation may be considered advisable.

TREATMENT OF HYPOPLASIA IN ADOLESCENTS

If the foregoing views about the causation of genital hypoplasia are correct, and if our methods of investigation are adequate, the necessary lines of treatment will be self-evident. Both nonendocrine and endocrine abnormalities require to be corrected.

A fault commonly encountered, even among well-to-do patients, is unbalanced nutrition, especially an inadequate protein intake. The general hygiene of the modern girl leaves much to be desired. Milder grades of anemia are frequent and appear to have a particular depressing effect on the reproductive system. Chronic focal infection contributes demonstrably to disturbance of the endocrine functions. In occasional cases congenital syphilis, rickets, lesions of the central nervous system, and other disease entities require treatment on the ground of their harmful influence on the metabolic level, as well as on their own merits.

The mechanism of endocrine treatment in the adolescent patient is primarily substitution, with an excellent chance of secondary homostimulation. Monoglandular therapy gives better results than pluriglandular; if the primary focus of failure is normalized, responsive disturbances in other glands tend to regulate themselves. The gland required is usually the anterior lobe of the pituitary, occasionally the thyroid, and never the ovary. Success depends on the use of potent preparations in adequate dosage.

SUMMARY

This preliminary paper contains too much speculative material to warrant any conclusions. It is hoped that subsequent papers will embody conclusions of a definite and practical character. The main points of my present thesis may be summarized as follows:

1. Female genital hypoplasia is a common condition and a major factor in the causation of sterility.
2. The immediate cause of such hypoplasia is most commonly a conpubertal insufficiency of the anterior lobe of the pituitary.
3. The diagnosis of established hypoplasia in adult women depends mainly on pelvic examination and the recognition of characteristic stigmas in the uterus.
4. Treatment of established genital hypoplasia is at the present time wholly ineffectual.
5. The diagnosis of incipient or threatened hypoplasia in adolescent girls depends, first, on the recognition of abnormal menstrual behavior, and, secondly, on the identification of depressing constitutional factors, both endocrine and nonendocrine.
6. The treatment of incipient or threatened hypoplasia consists in the elimination of all depressing constitutional factors, and is a hopeful undertaking.
7. In the management of the adolescent cases there exists a new and important opportunity for the practice of preventive gynecology.

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XEROSTOMIA *

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CASE 1.—April 15, 1919, there appeared at my office a woman, aged 34, complaining of excessive dryness of the mouth for the past eight years. For the past year there had been a discharge of pus from the mouth of Stenson's duct on the left and the same purulent discharge was now beginning from the duct on the right. There was no saliva or mucus, and deglutition could only be accomplished when the food was moistened with gulps of water, milk or coffee. There was no perspiration, even on exertion in extreme heat.

Examination of the nose showed practically normal nasal fossae, with no suggestion of atrophy but with little or no secretion. The mouth was extremely dry with flocculent masses, resembling inspissated mucus, adhering to the mucosa throughout. The tongue was dry, cracked and somewhat inflamed. The nasopharynx was free. The teeth were in exceedingly poor condition in spite of excellent care, and were soft and crumbling. Pressure along each cheek from the parotid toward the opening of Stenson's duct brought forth a minute droplet of pus. Pus could also be recovered on placing a glass suction tube over the mouth of the duct. A probe introduced into the duct failed to elicit the presence of a stone. Treatment such as suction, potassium iodide and local applications failed to give any relief. The patient was seen several times for about a month, when she was lost sight of.

She was seen again in July, 1920, when she gave a history of abscesses in various parts of the body which had responded finally to vaccines. There was apparently less discharge of pus from the parotids. She appeared again in May, 1921, when she gave a history of discharge of pus from the sublingual glands also. Her condition otherwise was about the same, except that her teeth were in worse condition.

She was not seen again until May, 1929, when she reappeared, complaining of fulness and some deafness in the right ear for the past month. Examination showed considerable retraction of the right tympanic membrane with

* Read before the American Laryngological, Rhinological & Otological Society, Atlantic City, N. J., May 29, 1930.

probably some effusion. The membrane on the left showed some thickening and retraction. The hearing distance for conversational voice was 1 meter on the right and 4 meters on the left, increasing to 5 meters on the right and 6 meters on the left following inflation by the Politzer method. The condition in the mouth was about the same as on the previous examinations, except that most of the teeth were gone and replaced by a plate. She has been seen at intervals since. At the recent examination the following history was elicited. This has been written for me by the patient herself in such a concise manner that I shall give it in her own words.

"As a child I was never considered very robust and was very peculiar in my habits of eating. I lived, in fact, on starches and sweets." She told me that she could remember her mother preparing half a dozen different kinds of food, all of which she would refuse to eat. She ate no fruits, meats, green vegetables or butter and drank no milk. Her diet consisted of potatoes, starchy foods, pastries and bread, coated with jam instead of butter.

To return to her narrative:

"I had the usual childhood diseases including diphtheria and scarlet fever, and a mild case of typhoid. When about 20, I became afflicted with boils and carbuncles, lasting for more than a year. For years after that the slightest scratch would develop into an infection. During 1909-1910, a serious stomach condition began, which restricted my diet to a very few things. At this time my own physician was abroad and the other physicians whom I consulted diagnosed the condition as acute indigestion and gastritis. In May, 1910, I was operated on for appendicitis. A minor abdominal operation was also performed. Before leaving the hospital I noticed that my mouth was rather dry. A few months later all my teeth began to ache and became so sensitive that I could scarcely eat. Dentists told me that it must be a nerve condition, as there were no cavities. The aching became so intense that I was forced to have nearly all the nerves removed under general anesthesia. This stopped the pain, but the teeth began to crumble and break until I had over twenty crowns and bridges in my mouth. The dryness kept increasing.

"In 1919 the salivary glands began to swell for two or three days at a time. This swelling would be accompanied by chills and fever. This condition had occurred about every four weeks for four or five years, when I discovered that on pressing on the glands quantities of pus would be discharged. At times vaccine treatment seemed to help. During most of this time my stomach was in such a condition that I had to be very careful of my diet. It was finally decided that there must be an ulcerated condition, which was relieved by frequent pumpings and washings.

"In 1921, after a severe case of influenza, my eyes became infected. For weeks they were as red as raw meat and were full of pus. Then I found that I had no tears. The sight in the left eye was only 14 per cent.

"At this time I wrote to Dr. McCollum of Johns Hopkins, describing the condition of my mouth and eyes and giving him a history of my peculiar habits of eating when a child, as well as my restricted diet during my years of stomach trouble. I had eaten scarcely any foods containing fats and had used no cream, milk or butter to speak of. He immediately wrote me giving me a very explicit diet to follow. This consisted of orange juice, tomatoes, cooked greens of all kinds, and raw vegetables, together with plenty of milk, cream and butter, whole wheat bread and some meat. In addition I was to take cod liver oil and calcium. The milk I was unable to digest, but I could take the cream, butter and cod liver oil. In six weeks the sight of my left eye was doubled and the inflammation had disappeared.

"A year later I saw Dr. McCollum in Cleveland. He was delighted with the change in my eyes. The mouth condition, however, remained the same. After several attacks of neuritis and arthritis, all but seven of my teeth were extracted. The discharge of pus from the salivary glands still continued. In March, 1929, I was again in the hospital with some sort of general poisoning resulting in arthritis."

In addition to the case described I will report briefly three other cases of xerostomia, two from the records of Lakeside Hospital in the service of Dr. M. A. Blankenhorn and one from a personal communication from Dr. Frank J. Geib. In none of these cases is there a history of a deficiency diet. In fact, the etiologic factor in most of the reported cases is decidedly indefinite, so that I am merely suggesting a deficiency diet as a possible etiologic factor.

CASE 2.—A woman, aged 54, complained of general weakness and a history of dry mouth for the past four months. There was a history of glycosuria, easily controlled by diet. The mouth was exceedingly dry, with discharge of pus from Stenson's duct. This pus showed some epithelial cells and a few small diplococci. The patient herself attributed the dryness of the mouth to the taking of some medicine, the nature of which she did not know. The nasal mucosa was dry and atrophic.

CASE 3.—A woman, aged 56, also complained of general weakness and dry mouth for the past four years. There was no perspiration "even in the warmest weather." She said that her mouth was so dry that "she could not lick a postage stamp." Pus from the sublingual glands showed a large number of white blood cells and a few diplococci. There was no saliva on stimulation with the faradic current but some sweating on administration of pilocarpine. The general examination was negative.

CASE 4.—Dr. Geib's patient, a single woman, aged 56, seen in 1924, complained of dry mouth for one year, the condition immediately following the death of a brother to whom she was much attached. There was some deficiency in tears and a marked falling out of her hair. Sweating was present only on rare occasions. Pus could be expelled from Stenson's duct but none from the submaxillary or sublinguinal glands. Three years later the condition was still the same and she complained also of a marked dryness of the eyes. The teeth were also bad. There was no relief from treatment.

Xerostomia was first reported by Sir Jonathan Hutchinson [1] in 1888. At that time he reported one case and suggested the name for the disease. Hadden [2] reported a case in 1889 and Hutchinson [3] a second one later. In 1922 only 47 cases were reported in the literature. Of these no etiologic factor could be found in 23. Of the remainder, 3 followed influenza and 7 were due to psychic disturbances, 3 to a sudden loss of teeth, 2 to a swelling of the glands, 1 each to a nervous disorder, to mumps, to a blow on the head, to pregnancy, to a heavy meal, to bad care of the mouth and caries and 2 to stone.

Curschmann [4] attributes the origin of xerostomia to: (1) senile atrophy, (2) psychic influences and (3) disease in the medulla, where the centers are located.

Schmidhuber [5] considers most cases of idiopathic origin, but mentions as causative factors (1) injury through stone, (2) a possible central nervous origin, and (3) a combination of the two causes, the stone being a probable result of the nerve involvement.

The psychic origin, a severe and sudden emotion, in one of Hutchinson's cases was most striking. Ninety per cent of the reported cases were in women and practically all the patients were past middle age.

In none of the reported cases has a deficiency diet been mentioned as an etiologic factor. In my case it certainly antedated the condition described. Whether the evident infection of the parotid preceded the atrophy

1. Hutchinson, Jonathan: A Case of Dry Mouth, Tr. Clin. Soc. London **21**: 180, 1887-1888.
2. Hadden: Xerostomia (Dry Mouth), Brain **11**: 484-486, 1888-1889.
3. Hutchinson, Jonathan: A Second Report on "Xerostomia," or "Dry Mouth," with an Additional Case, Tr. Clin. Soc. London **22**: 25, 1888-1889.
4. Curschmann, Hans: Ueber Xerostomie, Arch. f. Verdauungskr. **18**: 211, 1912; München. med. Wchnschr. **76**: 269 (Feb. 15) 1929.
5. Schmidhuber, K. F.: Ein Beitrag zur Klinik Xerostomie, München. med. Wchnschr. **69**: 1406 (Sept.) 1922.

and was therefore a causative factor, or whether it was an ascending one from the multitudinous flora of the mouth and gained access to the gland more readily on account of the absence of a descending current of saliva, it would be difficult to say. The latter would seem to be the more probable hypothesis since, in the absence of a current of saliva through Stenson's duct, bacteria could easily gain entrance to the gland itself.

In the foregoing report a deficiency diet as an etiologic factor is merely suggested as a possibility in this fairly rare and obscure disease.

Osborn Building.

GONORRHEAL SPURS A MISNOMER *

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One hundred consecutive cases of exostosis of the os calcis at the Mayo Clinic were reviewed with the purpose of ascertaining how frequently the gonococcus is a factor in the etiology of the disease.

It is generally believed that exostosis of the os calcis is of gonorrheal origin. This idea may have orginated from a report by Baer,[1] in 1905, in which he recorded five cases of painful heels due to exostosis of the os calcis, and all of the patients gave a definite history of having had gonorrhea. In two of the cases in which the spine was also affected, gonococci were found in the growths removed from the heels. In another case three cultures were made at the time of operation, and, although the cultures were negative, they showed diplococci that were decolorized by Gram's stain.

Waechter and Sonnenschein,[2] Murphy [3] and Epstein [4] recognized gonorrhea as the cause of some, but not all, cases of calcaneal spur. Meisenbach [5] expressed the belief that trauma was the main cause. Swett and Stoll [6] found calcaneal spurs in nine cases of hereditary syphilis. In Merritt's [7] three cases and in Moorhead's [8] one case gonorrhea was the only known cause.

Stiell,[9] in 1922, stated that about 90 per cent of painful heels are traumatic in origin, gonococcal inflammation of the plantar fascia being an infrequent cause of pain in the anterior portion of the ball of the heel where the plantar fascia gains attachment to the os calcis. This condition has been termed "young man's gout"; he cautioned physicians not to tell young men that all painful heels are due to gonorrhea.

That the presence of calcaneal spurs is not always accompanied by painful symptoms was shown by Blenke,[10] who studied the feet of 600 normal persons and found symptomless spurs in 2.8 per cent. Murphy stated that from 2 to 9 per cent of all normal persons past the age of puberty have symptomless calcaneal spurs. In 6 per cent of our own series of cases with spurs there was no pain. In our cases the youngest patients were aged 17 years and the oldest 75. Fifty-five per cent of the patients were between the ages of 25 and 44 years, and 16 per cent were aged more than 60 years.

There were eighty-five men and fifteen women. About 73 per cent of the women were aged 50 years or more.

Calcaneal spurs are most common in persons who do most of their work standing; hence it is most commonly seen in barbers, dentists, motormen and conductors of street cars, policemen, store clerks, and persons in similar occupations. The pain was directed to the heels in 55 per cent of the cases and to the feet in 39 per cent of the cases.

In 44 per cent of the cases a history of gonorrhea was obtained. In 5 per cent the heel became painful from three to four days after the onset of the gonorrheal symptoms, in 5 per cent after one to three months, in 56 per cent on an average of fourteen years, and in 3 per cent after thirty-four years. In 40.8 per cent of these cases definitely septic tonsils were found, in 59 per cent infected teeth, and in 22.7 per cent definite prostatitis. Pyuria was found in three cases only. Roentgenograms showed 61 per cent bilateral spurs, 18 per cent in the left heel and 21 per cent in the right heel.

In 56 per cent of the cases a history of gonorrhea was not obtained, and in this group 55.3 per cent of the patients had infected teeth, 20 per cent had septic tonsils, and 12.5 per cent had prostatitis. Pyuria was found in six cases. Roentgenograms disclosed 60 per cent of bilateral spurs in this group, 14 per cent on the left heel and 26 per cent on the right heel.

Destructive arthritis elsewhere in the body was found in eight cases of patients without gonorrhea and in four cases of those with gonorrhea.

A Wassermann test of the blood of eighty patients gave positive results in only three. These three patients came to the clinic with other complaints, and calcaneal spurs were found during examination. Antisyphilitic treatment was given to two of the three patients, and decided change in the condition of the calcaneal spur took place.

We shall not consider treatment here except to mention the surgical results in sixteen cases in which operation was performed. Thirteen of the patients were operated on at the clinic and three were operated on elsewhere. Of the latter, one patient had a recurrence of the spur with symptoms, and the other two patients still complained of pain in the heel. Of the former, ten reported excellent results from one to twenty years after operation.

SUMMARY AND CONCLUSIONS

Forty-four of 100 consecutive patients with calcaneal spurs gave a history of gonorrhea, and of these 40.8 per cent had definitely infected tonsils, 59 per cent had infected teeth and 22.2 per cent had definite prostatitis. Fifty-six patients did not give a history of gonorrhea; of these, 55.3 per cent had infected teeth, 20 per cent had infected tonsils, and 12.5 per cent had definite prostatitis. Eight patients without gonorrhea and four patients with gonorrhea had ostearthritis of other joints. Syphilis, so far as could be ascertained, was not an etiologic factor in any of the cases.

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1. Baer, W. S.: Painful Heels, Bull. Johns Hopkins Hosp. **16:** 264 (July) 1905.
2. Waechter, A. L., and Sonnenschein, H. D.: Painful Heels Due to Exostosis of the Os Calcis, New York M. J. **102:** 190-191 (July) 1915.
3. Murphy, J. B.: Painful Exostosis of the Os Calcis, Surg. Clin. J. B. Murphy **4:** 505-526, 1915.
4. Epstein, Sigmund: On Focal Infection as a Cause of Painful Heel, M. Rec. **96:** 187-188 (Aug.) 1919.
5. Meisenbach, R. O.: Pathogenesis of Spur Formation of the Os Calcis, Am. J. Orthop. Surg. **9:** 457-474 (Feb.) 1912.
6. Swett, P. P., and Stoll, H. F.: Hereditary Syphilis as an Etiological Factor in Spurs of the Os Calcis, Surg. Gynec. Obst. **22:** 674-678 (June) 1916.
7. Merritt, E. P.: Exostoses or Gonorrheal Spurs of the Os Calcis, J. A. M. A. **69:** 118-119 (July) 1917.
8. Moorhead, E. L.: Gonorrheal Spur on the Os Calcis, Surg. Clin. Chicago **3:** 623-626, 1919.
9. Stiell, W. F.: Painful Heel, Practitioner **108:** 345-353 (May) 1922.
10. Blenke, A.: Kalkanusspern, München. med. Wchnschr. **1:** 461 (April) 1917.

A variety of etiologic factors for calcaneal spurs have been commented on by various observers. Some factors, previously thought to be of primary importance, do not seem to be significant in the etiology. Neither syphilis nor gonorrhea is a gross factor in the etiology of most cases of calcaneal spurs. Foci of infection in the teeth, tonsils or prostate gland, and possibly other obscure areas, particularly those bearing streptococci, are probably a large factor in cases in which multiple etiologic factors are present. The term "gonorrheal spurs" is a misnomer and should not be used.

THE SUPRARENAL CORTEX AND TUMOR *

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The possibility of a relationship between the suprarenal cortex and the growth of malignant neoplasms has recently become a prominent subject of inquiry. Sokoloff [1] has recorded the absorption of transplanted animal tumors after they had been injected with a preparation of cortex and an iron salt through which the gland was assumed to direct metabolism. Arloing, Josserand and Charachon [2] have described an inhibition of the growth of a mouse carcinoma after the subcutaneous introduction of suprarenal gland from a rabbit prepared by inoculations of the same tumor; they found a glycerinated extract equally effective, whereas the normal gland proved to be inert, whether extracted or not. Activity was referred by these authors also to the cortex. Coffey and Humber,[3] finally, have said that an extract of suprarenal cortex from the sheep causes sloughing and ultimate disappearance of malignant tumors in man, but they regarded their investigation as still in the experimental stage and their results as decidedly inconclusive, though promising. The critical reader will agree that the results are inconclusive but will be inclined to doubt their promise.

My purpose in this paper is to describe briefly a repetition of the experiments of Arloing and his colleagues; a full account will appear later in the *Journal of Cancer Research*.

Two standard mouse tumors were investigated—carcinoma 63 and sarcoma 180, the latter having been included merely for completeness, as the French authors specifically limit their conclusion to an epithelial growth. Twenty-seven tumor-bearing mice were given suprarenal gland from rabbits previously treated with the strain of tumor which these mice bore, while twenty-five others received suprarenal gland from normal rabbits. The gland was administered in the form either of intact fragments or of a glycerin extract, exactly according to the directions of Arloing and his associates.

Although it had been planned to repeat their experiment on a rather large scale, it was soon apparent that the treatment contained no promise of success and the work was accordingly abandoned. No real inhibition of growth could be discovered, though it should not be forgotten that this statement applies only to the two neoplasms used. Perhaps an occasional tumor such as that employed by the French investigators may be influenced, but any treatment so narrowly restricted as this would hardly be a fruitful subject of extended inquiry.

CONCLUSION

The suprarenal glands of rabbits that have undergone preliminary treatment with carcinoma 63 or sarcoma 180 have no demonstrable inhibitory effect on the growth of these tumors in mice.

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1. Sokoloff, Boris: Suprarenal Cortex and Cancer, J. A. M. A. **94**: 652 (March 1) 1930.
2. Arloing, Fernand; Josserand, A., and Charachon, J.: Modifications évolutives de l'épithélioma expérimental de la souris blanche par greffes de surrénales provenant de lapins préparés avec ce même épithélioma, Compt. rend. Soc. de biol. **100**: 1035 (April 19) 1929; Modifications évolutives de l'épithélioma expérimental de la souris blanche par injection d'extraits glycérinés de surrénales provenant de lapins préparés avec ce même épithélioma, Compt. rend. Soc. de biol. **101**: 1140 (Aug. 13) 1929.
3. Coffey, W. B., and Humber, J. D.: The Effect of a Suprarenal Extract for Malignant Growth, J. A. M. A. **94**: 359 (Feb. 1) 1930; The Coffey-Humber Treatment, J. A. M. A. **94**: 652 (March 1) 1930.

PREGNANCY AND PARKINSONISM

REPORT OF A CASE *

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Numerous papers have appeared dealing with acute encephalitis complicating pregnancy since von Economo [1] first reported a series of cases of epidemic encephalitis in 1918. The combination of pregnancy and chronic encephalitis (parkinsonism), however, has received comparatively little attention by writers on this subject. The present study of chronic encephalitis in pregnancy has been undertaken for this reason and in order to determine, if possible, the effect of chronic encephalitis on the gravid state and vice versa.

It might be worth while to summarize the literature of acute encephalitis in pregnancy before proceeding with the discussion of chronic encephalitis or post-encephalitis parkinsonism in the gravid woman. The suggestion that the pregnant individual is particularly susceptible to acute encephalitis has been advanced by students of small epidemics or of isolated cases, whereas those reporting large groups of patients observed no special predisposition associated with pregnancy. Sternberg [2] reports that, of fourteen patients with acute encephalitis, five were pregnant, while the Glasgow investigation,[3] based on almost 400 cases, disclosed only a 0.5 per cent incidence. The conclusion of Roques [4] that in any large epidemic only 2 or 3 per cent are pregnant women may be accepted, since it is founded on a most careful series of studies. This author does not believe that the infection in pregnancy is of unusual severity, contrary to the assertions of Dimitz [5] and of Jorge.[6] The latter authors, along with Robinson [7] and Bertolini,[8] assert that pregnancy aggravates the encephalitic symptoms. Hall,[9] supporting Roques, on the other hand, contends that there is no especial gravity

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1. Von Economo, C.: Wien. klin. Wchnschr. **30**: 581-585, 1917.
2. Sternberg, C.: Wien. klin. Wchnschr. **33**: 785, 1920.
3. Chalmers, A. K.: Glasgow M. J. **104**: 190-220 (April 4) 1925. Chalmers, A. K., and MacGregor, A. S. M.: Lancet **1**: 610-612 (March 24) 1923.
4. Roques, F.: Epidemic Encephalitis with Pregnancy, Labor and the Puerperium, Manchester, Sherratt and Hughes, p. 139; Proc. Roy. Soc. Med. (Sect. Obst. & Gynec.) **21**: 1053-1062 (April) 1928; J. Obst. & Gynaec. Brit. Emp. **35**: 1-113, 1928.
5. Dimitz, L.: Wien. klin. Wchnschr. **33**: 163 (Feb. 19) 1920.
6. Jorge, R.: Paris med. **11**: 454-463 (June 4) 1921.
7. Robinson, L.: Encéphalite épidémique et gestation, Thèse de Paris, 1921.
8. Bertolini, G.: Folia Gynaec. **19**: 61-108, 1920.
9. Hall, A. J.: Epidemic Encephalitis, Bristol, 1924.

attached to pregnancy as a complication of the condition.

Clinically, acute encephalitis pursues the same course in the pregnant as in the nonpregnant patient, but the possibility of confusing the picture with other morbid complications of pregnancy must not be overlooked. Atypical eclampsia and chorea may occasionally be regarded as encephalitis, as, for example, in the cases reported by Foulkrod [10] and by Commandeur.[11]

Great variations in the death rate of acute encephalitis in pregnancy have been reported. Robinson and Jorge allege that the mortality rate is 60 per cent, while Roques holds that it is only 5 per cent. Differences likewise are found with respect to the effects of labor on the course of the disease. Pollastroni [12] and Hofer [13] believe that the natural evacuation of the uterus relieves the symptoms, while Benthin [14] and Jorge are certain that the stress of labor augments them. The exhaustive investigation of the ministry of health [15] failed to uncover any relation between the act of labor and the severity of the nervous symptoms.

The opposite aspect of the question, namely, the effect of acute encephalitis on pregnancy, requires mention. Roques, in a review of the literature, found that it was generally agreed that neither the labor nor the puerperium was affected by the concurrence of acute encephalitis. He found, however, no unanimity in regard to the influences of the disease on the course and outcome of gestation. This author believes that it has no deleterious effect, but Jorge maintains that spontaneous abortion or premature labor is a common termination of pregnancy.

Another interesting feature of the question is the possibility of the disease being transmitted to the fetus. Cases, verified by necropsy, in which transmission seemingly occurred, have been referred to by Marinesco [16] and by Santi.[17]

The treatment of acute encephalitis in the pregnant does not differ from the management of the disease in ordinary patients. It is the general belief that therapeutic abortion is not indicated, because of the lack of any proved relation between evacuation of the uterus and amelioration of the condition. It may be stated that Hofer disagrees with this view and asserts that termination of gestation is invariably indicated in the presence of acute encephalitis. Bompiani is more conservative, recommending intervention with pregnancy only in severe cases. Until a better case for therapeutic abortion can be established, it seems unjustifiable to employ this procedure.

CHRONIC ENCEPHALITIS IN PREGNANCY

Women who previously suffered attacks of epidemic encephalitis, with or without complicating parkinsonian symptoms, not infrequently become pregnant. The influence of the pregnancy, labor and puerperium on the parkinsonism and vice versa is a problem as yet not entirely settled, probably because of the lack of reports of such cases and the divergence of the various observations. A number of authors have reported more or less detailed descriptions of cases in which women partially or fully recovered from acute attacks and who later developed parkinsonism during a subsequent pregnancy, or conceived while in the parkinsonian state.

Roques,[4] Hall,[9] Meyer,[18] Lévy,[19] Garipuy,[20] Valente and David,[21] Somerville,[22] Offergeld,[23] Guillain and Gardin,[24] Critchley [25] and others have reported instances in which pregnancy occurred in women suffering from chronic encephalitis.

Case histories of some of the foregoing authors are herewith briefly summarized: Roques collected reports of forty cases of parkinsonism associated with pregnancy. Of these, twenty-three had previously been reported by other authors, while Roques published seventeen for the first time. Meyer reviews the history of a patient who made an apparently complete recovery. One year afterward she became pregnant and lethargy recurred for two months. In the sixth month of gestation, symptoms of paralysis agitans set in. A normal child was born at term; but in the puerperium symptoms occurred, including bilateral ptosis, and dysphagia, which suggested a recrudescence of the disease.

Lévy records a similar case in which, two years after the attack with practically complete recovery, the patient, on becoming pregnant, developed a parkinsonian syndrome.

Hall's patient suffered an acute attack in the third month of pregnancy, recovered and went to term, giving birth to a normal child. Two years later she again became pregnant but noticed increasing difficulty in getting about. Following the birth of this child the patient became worse and developed typical parkinsonism with extreme rigidity and slowness of movement. Critchley briefly discusses the histories of seven patients with postencephalitis parkinsonism who subsequently became pregnant. In every instance the patient continued to term; labor was normal and the infant healthy. He could not satisfy himself as to any gross exacerbation of the neurologic state in any of the patients as a result of child bearing.

These cases indicate the existence of several possible relationships between pregnancy and parkinsonism. This aspect has not as yet received adequate consideration in the many papers dealing with this subject.

For this reason, an effort has been made to answer the following questions bearing on such relationships: 1. Is parkinsonism a more frequent sequel to acute epidemic encephalitis in pregnancy than to acute encephalitis in general? 2. What is the influence of parkinsonism on pregnancy, labor and the puerperium? 3. What is the effect of pregnancy on parkinsonism? 4. What is the effect of maternal parkinsonism on the child?

FREQUENCY OF PARKINSONISM AS A SEQUEL OF THE ACUTE DISEASE

The literature leads one to the conclusion that at least 75 per cent of the patients with acute encephalitis in pregnancy develop symptoms of paralysis agitans, whereas the incidence of the chronic state after ordinary acute encephalitis is not more than 25 per cent. Roques

10. Foulkrod, C.: Am. J. Obst. & Gynec. **5**: 326-331, 1923.
11. Commandeur and Eparvier: Bull. Soc. d'obst. et de gynéc. de Paris **19**: 388-389, 1920.
12. Pollastroni, G.: Riv. med. **30**: 17-19, 1922.
13. Hofer, C.: Zentralbl. f. Gynäk. **45**: 1604-1607, 1921.
14. Benthin, W.: Zentralbl. f. Gynäk. **45**: 1604-1607, 1921.
15. Ministry of Health (British), Eleventh report, 1922.
16. Marinesco, M. G.: Bull. Acad. de méd. **37**: 1055-1061, 1921.
17. Santi: Rassegna d'ostet. e ginec. **29**: 81-89, 1920.
18. Meyer, E.: Deutsche med. Wchnschr. **48**: 341, 1922.
19. Lévy, M. G.: Manifestations tardives de l'encéphalite épidémique, Paris, 1922.
20. Garipuy, R., and Meriel, Paul: Gynéc. et obst. **18**: 2-5 (July) 1928.
21. Valente, P., and David, M., cited by Jorge, Paris Med. **11**: 454-463 (June 4) 1921.
22. Somerville, C. W.: Tr. Edinburgh Obst. Soc. **48**: 127-130, 1927-1928.
23. Offergeld, D.: Arch f. Gynäk. **133**: 558-572, 1928.
24. Guillain, G., and Gardin, C.: Bull. et mém. Soc. méd. d. hôp. de Paris **45**: 1417-1420 (Nov. 4) 1921; abstr. J. A. M. A. **77**: 2151 (Dec. 31) 1921.
25. Critchley, MacDonald: Proc. Roy. Soc. Med. (Sect. Obst. & Gynec.) **21**: 1063 (April) 1928.

reports an incidence of 80 per cent in his series of cases. In the Sheffield epidemic of 1924, the sequela occurred in 77 per cent of the acute cases. It therefore seems that women infected during pregnancy are more liable to develop parkinsonism than those acutely stricken in the nonpregnant state.

In this connection it is interesting to note the time of onset of the encephalitis symptoms in the subsequent pregnancy. Early onset seems to be the rule; Bompiani [26] and Fort [27] report the syndrome arising during the first three months of pregnancy. Many authors have found cases in which parkinsonism dated from the delivery or shortly afterward. Thus, Hall, Roques and Bompiani cite such cases and believe that the labor precipitated the chronic condition. In nineteen of Roques' cases, women became pregnant after suffering from acute encephalitis. In five cases, parkinsonian symptoms appeared for the first time during the early months of pregnancy, while in one case they appeared after delivery. In nine cases, symptoms became more marked during pregnancy or in the puerperium. Holmes [28] described a case in which the patient had acute encephalitis but never showed any sequelae. She was delivered normally and within thirty minutes thereafter developed the typical clinical appearance of paralysis agitans. Hall [9] and Strecker [29] describe cases in which parkinsonism developed in a later pregnancy, the acute attack having occurred during a previous gestation.

INFLUENCE OF CHRONIC ENCEPHALITIS ON PREGNANCY

There is little evidence to indicate that parkinsonism exerts a deleterious effect on the course of gestation. However, Stern [30] and Bompiani state that toxemia occurs more frequently in these cases than in the normal gravid woman. Premature birth apparently is not more common in the parkinsonian patient, Roques reporting only six premature births among thirty-three cases of parkinsonism arising in pregnant women. Offergeld, disagreeing with this view, claims that parkinsonism in pregnancy does not appear to render labor more difficult, since painless and easy labors have frequently been described in the literature. This feature has been emphasized by Jorge, Del Sole,[31] Roques and Bompiani. It may be said in summarizing the effect of parkinsonism on pregnancy that, notwithstanding certain adverse opinion, most observers believe that pregnancy is not more serious and labor not more difficult than in patients free from this complication.

THE EFFECT OF PREGNANCY AND LABOR ON PARKINSONISM

Some authors (Hall, Roques and Offergeld) are of the opinion that pregnancy definitely aggravates paralysis agitans. Del Sole cites three patients with parkinsonism who died of the disease after they became pregnant. Pitimada [32] records the interesting history of a woman who became pregnant three times, the parkinsonian symptoms becoming aggravated on each occasion. In 1927, Voron [33] reported a case of encephalitis unveiled by childbirth and confirmed by autopsy.

In spite of these occasional cases, the possible deleterious effect of pregnancy on parkinsonism is not yet proved. It must not be forgotten that the hundreds of victims of parkinsonism who have been safely delivered remain unreported, whereas the histories of outstanding cases of suddenly aggravated encephalitis usually are published.

It cannot be denied, however, that some patients, at least, are made worse by gestation. The question then arises, When is aggravation to be expected? It is generally agreed that the physical condition, if made worse at all, is likely to be impaired in the first half of pregnancy. Roques found a total of thirty-four cases in which the parkinsonian syndrome had been aggravated during or made its first appearance in pregnancy. In twenty-one cases, the onset or aggravation occurred early in gestation; in fourteen of these a second exacerbation was observed early in the puerperium. The condition is also likely to be intensified during labor. Hall and Del Sole report instances of this type. The simplest explanation for this occurrence is, of course, that the stress of labor aggravates the disease, although the theory has been advanced that the fetus withdraws toxins from the mother, and, with the delivery of the child, this source of detoxication is unavailable. However, little evidence has been cited in support of this hypothesis. From a study of cases thus far reported, evidence is found to indicate that pregnancy has an unfavorable influence on parkinsonism, but the evidence is by no means conclusive.

EFFECT OF PARKINSONISM ON THE CHILD

Actual cases of transmitted encephalitis are extremely rare. Strecker has observed several children up to the fifth year of age without discovering any suggestion of abnormality. Bompiani reported a case symptomatically resembling encephalitis in a child born of a mother afflicted with parkinsonism. Unfortunately there was no autopsy protocol, but in general one may say that a full term child faces no stigma by virtue of having been born of a mother with encephalitis.

REPORT OF CASE

Mrs. M. G., aged 31, white, a housewife, admitted to the service of Dr. P. B. Bland, June 10, 1929, had had her last period, Sept. 5, 1928, and the estimated date of labor was June 15, 1929. The family record was irrelevant, disclosing no history of acute or chronic encephalitis, nor could a history of chronic disease of the nervous system be obtained.

Her past history was unimportant except for an attack of acute encephalitis. She had measles, whooping cough and smallpox in childhood. She gave no history of having been operated on. She was married in 1922 and gave birth to a healthy child in 1923. In 1925 she had an acute attack of encephalitis characterized by fever, diplopia and somnolence. Within a few months after the disappearance of the acute symptoms, she began to notice some difficulty in gait and retardation in movement. Within a year she had a fully developed parkinsonian picture.

She had a few slight labor pains, June 10. Informed that she would soon be delivered, she sought admission to the hospital on that day. At the time of admission her urine showed a faint trace of albumin and microscopically revealed a few leukocytes. The specific gravity was 1.020. An examination of the blood yielded little of interest. The hemoglobin was 100 per cent, the red cell count 4,190,000, the leukocyte count 7,800. The Wassermann and Kahn reactions were negative. The blood chemistry showed sugar 107 mg., and nonprotein nitrogen 23 mg. A spinal tap was performed and the fluid was clear. The spinal fluid was under normal pressure, and the cytologic, chemical and serologic examinations were all negative.

26. Bompiani, R.: Policlinico **31**: 1651-1654, 1924. Riv. d'ostet. e ginec. prat. **6**: 104-114, 1924.
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29. Strecker, E. A., and Willey, G. F.: Am. J. Psychiat. **4**: 631-642 (April) 1925.
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31. Del Sole, E.: Riv. d'ostet. e ginec. prat. **6**: 126-130, 1924.
32. Pitimada, F. A.: Arch. di ostet. e ginec. **11**: 124-141, 1924.
33. Voron, Dechaume and Malarte: Bull. Soc. d'obst. et de gynec. de Paris **16**: 66-68, 1927.

A neurologic examination made on the day of admission revealed a smooth, expressionless face; slow gait showing marche-à-petit-pas; general body rigidity; normal cranial nerves, and no signs of disturbance in the cerebellar function except the hypertonicity which is probably due to basal ganglion involvement. The biceps, triceps, patellar and achilles tendon reflexes were all normal. Babinski's sign and ankle clonus were both absent. Sensation seemed normal, as tested with pin-point, cotton and tuning fork. The position sense and stereognosis were good. There was a fine tremor of the hands, noticed particularly when they were at rest. Associated arm movements were lost. The objective picture was one of paralysis agitans.

June 13, three days after admission, the patient became stuporous. Her mouth remained open and her tongue was dry. The pulse was rapid and small, registering 130. An examination of the heart and lungs showed them to be normal. Fetal heart sounds were heard in the right lower quadrant. June 27, the temperature began to rise and registered 101 at noon.

June 29, she was delivered of an apparently normal baby. She delivered spontaneously in bed. She made no outcry and the attendants did not even know that she was in labor. The placenta and membranes were expelled intact, and the uterus contracted promptly.

The temperature was normal until June 27, when it rose to 101 F. After labor it returned to normal and so it remained

Appearance of patient one day after delivery.

until July 5, when it rose rapidly to 102. The patient died, July 7, eight days after labor. Permission for autopsy was refused.

The baby, at birth, so far as could be determined, was a perfectly normal, healthy, full term child. When seen, April 23, the baby was found to be in good health.

CONCLUSIONS

1. Women suffering from chronic epidemic encephalitis are not rendered sterile thereby.

2. The incidence of abortion in the patients who conceive is about the same as in the nonparkinsonian individual.

3. Pregnant women are not especially susceptible to acute encephalitic infection.

4. Clinically the disease pursues about the same course in the pregnant as it does in the nonpregnant woman, though the mortality rate is somewhat increased.

5. Pregnancy may aggravate latent or quiescent symptoms of encephalitis in patients who have been previous victims of the disease.

6. Women becoming infected with acute encephalitis during pregnancy are especially prone to develop parkinsonism as a sequel, the incidence being from 75 to 80 per cent. In the nonpregnant woman the incidence does not exceed 25 per cent.

7. Chronic encephalitis does not influence pregnancy with its culmination in labor adversely, save in a small percentage of cases.

8. Accumulated evidence tends to show that pregnancy has a decidedly unfavorable effect on parkinsonism.

9. While it is possible for encephalitis to be imparted to the unborn child, transmission of the disease to the fetus seems to be exceedingly rare.

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RUPTURE OF THE BLADDER

A PLEA FOR ITS EARLY DIAGNOSIS AND TREATMENT *

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In an endeavor to outline and classify the essential observations and symptoms which ought to make possible an early diagnosis of ruptured bladder, all cases of trauma to this viscus admitted to the Cook County Hospital during the years 1926-1929 both in my service and in that of my colleagues were reviewed and analyzed; to these were added private cases and those admitted to the Ravenswood Hospital, about fifty cases in all.

Convinced that rupture of the bladder is as much a surgical emergency as any coming under the general classification of "acute abdomen" and that the present high mortality is to a large extent due to unnecessary delay in diagnosis, I collectively tabulated and analyzed salient symptoms in order to separate the constant from the occasional, the pathognomonic from the contributory clinical finding. In the study of these fifty cases, the conviction is forced on one that a large percentage came under the primary care of colleagues unfamiliar with traumatic surgery. Constructive criticism alone justifies mentioning one case in which twenty-two days was allowed to elapse before an extraperitoneal rupture was recognized and operated on. In this instance too much reliance had been placed on roentgenologic and cystoscopic examinations, both of which gave negative results. Another extraperitoneal rupture was referred to my service for drainage of a right lumbar abscess which was found to contain extravasated urine that had passed retroperitoneally from the space of Retzius. An intraperitoneal rupture was undiagnosed for several days because a concomitant fracture of the right forearm had engaged the attending physician's entire attention and only the onset of an apparent ileus disclosed the major lesion. An elderly woman lived for three days following an automobile accident. In spite of repeated catheterizations of bloody urine, no surgical intervention was attempted and the coroner's report disclosed a fracture of both pubic rami and extraperitoneal rupture of the bladder with extravasation and infection.

Less than 5 per cent of bladder ruptures are caused by or accompany pelvic fracture (one case in twenty fractured pelves, Ravenswood Hospital, 1926-1929; three in forty-two bodies, Cook County Hospital, 1911-1924); and cystoscopy will be negative if (*a*) in extraperitoneal rupture the tension of the extravesical fluid equals that within the bladder; or (*b*) the rent in

* Read before the Chicago Surgical Society, April 4, 1930.
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the serosa and muscularis is overlapped by a fold of mucosa. The probability of multiple injuries being present is frequently overlooked. Fracture of the forearm, laceration of the right supra-orbital region, contusion of the right leg and of the right hip and bilateral inguinal hernia were some of the outstanding injuries that masked a coincident trauma to these patients' respective bladders. When the patient is intoxicated or unconscious, or no history of the case is obtainable because of linguistic difficulties, failure to make a correct primary diagnosis is readily understandable. Of the Cook County series, two cases, one of cerebral concussion and the other with no history of trauma but symptoms of intestinal obstruction present, come under this heading.

ANATOMIC CONSIDERATIONS

The bladder is suspended in the anterior portion of the pelvis by the urachus above and is firmly attached to the prostate and rectum at the rectovesical pouch. The so-called ligaments of the bladder are merely reflections of the pelvic fascia. It is firmly fixed only at its upper and lower portions. Separated from the symphysis anteriorly by the prevesical space of Retzius, the bladder is nowhere in intimate contact with the pelvic bones. Very rarely are spicules of bone found which have penetrated the bladder wall (none in the forty-two Bacon-Le Count series); they are never found in intraperitoneal ruptures, which almost invariably involve the upper posterior wall.

The capacity of the bladder varies within wide limits among different individuals and in the same individual at different times. Distention of the rectum by gas and feces increases the frequency of desire to urinate. Habit and environment exert an important influence. An individual who can always do so will empty his bladder at the first inclination; under stress of social customs he may have to postpone the act in spite of desire; women are peculiarly apt to curb this inclination. Automobile trips frequently create situations in which the bladder becomes overdistended; hence the number of ruptured bladders reported in recent years as the result of automobile accidents. While the normal bladder capacity has been estimated as lying between 350 and 500 cc., pathologic changes may decrease its distensibility to a marked degree. Rejsek [1] reports injecting 120 cc. of contrast suspension for roentgenography of the bladder of a 68 year old man. This was immediately followed by severe spasm of the bladder, and the roentgenogram revealed a rupture of the bladder wall. The patient recovered after drainage of the space of Retzius. A man, aged 57, came to Bitschai's [2] clinic for the treatment of hematuria. During cystoscopy, which revealed a papillary carcinoma of the bladder, a spontaneous rupture occurred. Progressive paralysis, tuberculosis of the bladder and diverticula may also lead to atraumatic rupture. Gottlieb [3] created an intraperitoneal rupture of the bladder while performing a lithotripsy. His patient was a man, aged 57. After closing the tear, he poured 75 cc. of ether into the pelvic cavity. The patient recovered. Coplan's [4] patient was a man, aged 42, who during a drunken bout developed what was at first diagnosed as acute gastritis. The true pathologic condition was recognized twenty-four hours later at laparotomy. An intraperitoneal tear was found; owing to the presence of severe shock, the bladder was not sutured and under prolonged drainage the patient eventually recovered. Malcolm [5] also reported the case of a man, aged 30, who, while drunk, was put in jail, although he complained of severe abdominal pains. A working diagnosis of ruptured gastric ulcer was made; after the stomach was found to be normal, the abdominal incision was prolonged toward the pubis. A rupture of the bladder had occurred in two places, both on its posterior wall. The tears were sutured to the parietal peritoneum; after the bladder had drained for nine days the fistula was allowed to close by granulation tissue. The patient recovered in six weeks. Jilow [6] found a 4 cm. intraperitoneal rupture of the bladder in an alcoholic addict, aged 44; there was no history of trauma obtainable. Chronic stricture of the urethra has been known to cause spontaneous rupture of the bladder.[7]

In extraperitoneal rupture of the bladder there may be rare instances of actual puncture of this viscus by a spicule of bone if the trauma is very violent; in most cases the rupture occurs as a result of a sudden pull on the lateral true ligaments if the bladder is empty. Bacon and Le Count did not find any bone spicules in the bladders in their reported cases.[8] Direct trauma of the suprapubic area may be transmitted to a distended bladder and cause a rupture, as occurred in a Cook County case. All intraperitoneal ruptures are of the bursting variety; a further subdivision into spontaneous or pathologic and traumatic clarifies the picture. By spontaneous should be understood a tear of the bladder without external or internal stimulation. Besley,[9] in 1907, reported one spontaneous rupture in twenty-five cases analyzed from the Cook County services. Five are reported in the present series; two of them may be classed as doubtful because they occurred in alcoholic patients.

In children the bladder is practically an abdominal organ; when it is empty the peritoneum sinks about to the level of the top of the symphysis, but when it is distended it rises from 2.5 to 6.25 cm. above. In the adult the top of the bladder is held to the top of the symphysis by the urachus, and as it becomes empty the upper surface descends until a curved line is formed from the top of the symphysis downward and backward to the retrovesical pouch. When bladder and rectum are both empty, the former lies at the bottom of the pelvis. When the rectum is distended by gas, feces or both, the bladder is raised so that its fundus or vertex reaches to or nearly to the upper border of the symphysis. When the bladder begins to distend, the rectum being empty, the distention begins in the posterior part of the bladder and continues to be greatest in this portion. The weakest part of the bladder wall is in its posterosuperior hemisphere; tearing occurs in the direction of the longitudinal muscle fibers, which tend to spread out and allow a diastasis of the bladder mucosa (Jeanbrau [10]). The shape of the bladder, when

1. Rejsek, J.: Rare Case of Rupture of Bladder During Roentgenography of Bladder, J. d'urol. **20**: 382-387 (Nov.) 1925.
2. Bitschai, J.: Spontaneous Rupture of Bladder: Case, Ztschr. f. Urol. **21**: 461-464, 1927.
3. Gottlieb, J. G.: Case of Rupture of Bladder Caused by Lithotripsy, Ztschr. f. Urol. **22**: 469-471, 1928.
4. Coplan, M. M.: Intraperitoneal Rupture of Bladder with Report of Case, J. Florida M. A. **13**: 182-185 (Feb.) 1927.
5. Malcolm, R. B.: Rupture of Bladder, Canad. M. A. J. **15**: 1151 (Nov.) 1925.
6. Jilow, N. V.: Spontaneous Rupture of Bladder: Case, Zentralbl. f. Chir. **55**: 780 (March 31) 1928.
7. Williams, L. H.: Multiple Scrotal Fistulae Following Rupture of Bladder with Stricture of Urethra; Operation and Restoration of Function, U. S. Nav. M. Bull. **25**: 897-898 (Oct.) 1927.
8. Bacon, L. H., and LeCount, E. R.: Automobile Injuries: A Study from Records of Postmortem Examinations, Arch. Surg. **18**: 769-802 (March) 1929.
9. Besley, F.: Ruptures of Urinary Bladder, Surg. Gynec. Obst. **4**: 514-520, 1907.
10. Jeanbrau, E.: Pathologie chirurgicale **5**: 376-380, 1928.

distended, is also considerably modified by the full or empty rectum. When the latter is empty the floor of the bladder descends, expands anteroposteriorly and laterally and rises only moderately. With a distended rectum the pelvic space is limited and the bladder rises into the abdominal cavity. Fehleisen [11] found the relations presented in table 1 between the peritoneal fold and the symphysis under different conditions of distention of the bladder and rectum.

A distended bladder ascends out of the pelvis and rests directly against the anterior abdominal wall.

TABLE 1.—*Relation of Position of Peritoneal Fold to Degree of Distention of Bladder*

Bladder	Rectum	Peritoneal Fold Above Symphysis
300 cc.	Empty	0.5 cm.
200 cc.	Full	4.0 cm.
630 cc.	Empty	2.0 cm.
420 cc.	Full	8.5 cm.

Besley proved experimentally on cadavers that it only took from 9 to 17 pounds (4 to 7.7 Kg.) pressure to rupture a bladder wall. While admitting that in a cadaver the elasticity of the muscle fibers had been lost, to offset this disadvantage is the fact that the pressure was applied slowly and carefully. One must conclude from these significant experiments that a very slight trauma to the lower anterior abdominal wall, directly transmitted to a distended bladder, can be sufficient to cause a rupture of the latter.

Extraperitoneal rupture takes place into the prevesical space of Retzius; from this region urine and blood may invade the subcutaneous spaces as low as both knees or as high up as the umbilicus; it also can penetrate the subperitoneal tissues of the pelvis and abdomen and reach the perinephric tissues.

ETIOLOGY

I have tabulated the type of trauma responsible in the analyzed series (table 2).

Thus of the analyzed series of ruptures, 40 per cent were caused by automobile accidents; i. e., the injured being drivers or passengers of cars. It is safe to state that in a majority of these patients the lower abdominal wall came in sudden contact with the steering wheel or dashboard. Given an overdistended bladder lying against the anterior abdominal wall plus a sudden "off-guard" bump, and one has the bursting injury which is the typical finding in a majority of bladder ruptures. While some of the patients, especially the alcoholic addicts, are notoriously vague as regards a full or empty bladder at the time of an accident, those who did remember reported that they had not voided for several hours prior to the collision. Caulk's [12] case is typical. A 6 year old girl, living on a farm, was leaving the loft in which she had spent the night with her mother when she slipped on the floor and a horse stepped on the lower part of her abdomen. Her bladder was necessarily overdistended; no fracture of the pelvis was found but there was a bursting rent of the base of the bladder just lateral to the right margin of the trigon. In Besley's report, falls and crushing injuries accounted for 60 per cent of his cases.

TABLE 2.—*Type of Trauma Causing Rupture*

Automobile accident	20
Crushing injury	10
Falls	10
Kick on lower abdomen	3
Indirect (no history of trauma)	3
Fall on buttocks	2
Saddle-horn trauma	1
Stepped on by horse	1
	50

Next to automobiles, falls and crushing injuries claim the largest percentage of victims, and it is in this group that most cases of fractured pelves and almost all of the extraperitoneal lacerations of the bladder are to be found. Alcoholism, strictures of the urethra, prostatic hypertrophy and pathologic changes in the bladder wall (carcinoma, tuberculosis, chronic cystitis) are important concomitant factors. Brenner [13] reports that a man, aged 56, who was walking to the toilet to empty a full bladder, slipped and fell on his buttocks. There was no trauma to the pubic region. A 4 cm. tear was found, beginning at the peritoneal reflexion. Hoffman's [14] patient, aged 43, slipped on ice and fell on his buttocks, bursting his bladder.

SYMPTOMS AND DIAGNOSIS

I have tabulated the signs and symptoms taken from the fifty analyzed histories in order to bring out the salient points (table 3).

TABLE 3.—*Symptoms Present in Fifty Cases of Ruptured Bladder*

Total number of cases analyzed	50
Pain and tenderness over pubes	45
Vesical tenesmus	40
Lower abdominal distention	40
Bloody urine	25
No post-traumatic urination	22
Swelling of inguinal region, scrotum or vulva	12
Bloody urine in peritoneal cavity	12
Clear urine on catheterization	5
Shock	5
Vomiting	5
Blood alone voided or catheterized	4
No urine on catheterization	3

From the foregoing it would seem evident that, given a history of trauma, however slight, followed by pain and tenderness in the suprapubic region, vesical tenesmus and lower abdominal reaction, one should suspect possible injury to the bladder. Bloody urine or no post-traumatic urination is a frequent symptom. Blood may be voided once or not at all; the site of the tear may not include any sizable blood vessels. Blood alone may be voided if all the urine finds its way into the peritoneal cavity and the tear is near the trigon. Cystoscopy may be of great value, especially in incomplete ruptures or traumatic herniations of the bladder wall; it may be dangerous if attempts are made to remove blood by irrigation, and the cystoscopic report should not be given undue weight—it is merely corroborative.

The catheter should be used early and repeatedly, preferably at two hour intervals if there is still any doubt regarding the exact diagnosis. Bloody urine, clear urine with or without a trace of albumin or no urine may be the reward of catheterization. Clear urine may throw the surgeon off the right track unless he checks up on the quantity obtained or spontaneously voided. The patient's statement as to the presence or absence of bloody urine is usually unreliable. If the

11. Fehleisen, A.: Arch. f. klin. Chir. **32**: 563, 1885.
12. Caulk, J. R.: Rupture of Bladder in Child, J. Urol. **19**: 603-611 (May) 1928.
13. Brenner, A.: Rupture of Bladder, Wien. klin. Wchnschr. **39**: 328-329 (March 18) 1926.
14. Hoffman, C. G.: Traumatic Rupture of Urinary Bladder: Report of Two Cases, South. M. J. **18**: 680-684 (Sept.) 1925.

intraperitoneal tear is a large one, urine and blood freely enter the peritoneal cavity and are as readily withdrawn. In one case of the Cook County series, 7,775 cc. of urine was recovered by catheterization at one time. This patient, a man, aged 32, had been kicked in the lower part of the abdomen while intoxicated. He remained unconscious for several hours, then went home and vomited several times. Following catheterization, the history states, "he went into a serious condition suggesting right cerebral hemorrhage." Death occurred on the third day after admission, presumably four days after the kicking. The true diagnosis of intraperitoneal tear of the bladder was not made until after death.

Shock and vomiting are only occasionally present; if they appear at all it is usually several days after the accident, when infection has set in. World War wounds of the bladder were almost invariably accompanied by profound shock, but there were many factors present that are not found in civil traumatisms. Pulse, temperature, respirations and leukocyte count are utterly unreliable except as a general indication that there is a systemic reaction against something, somewhere.

The Vaughan-Rudnick test [15] is accurate but should be unnecessary in the vast majority of cases. If more than 100 cc. of air is used there might be some danger of completing a hitherto incomplete rupture of the bladder. Moreover, it demands a technic and armamentarium not always available. The roentgenogram will diagnose fractures of the pubic rami, ischial tuberosities or sacrum, but, as shown elsewhere in this paper, approximately only 5 per cent of fractured pelves are associated with rupture of the bladder.

The old classic method of injecting a measured quantity of sterile fluid and then removing and measuring it belongs to the period of 100 per cent mortality and should not be used. Suprapubic puncture is both unnecessary and unreliable. In a case in the Cook County Hospital series, suprapubic puncture was negative, although a few hours later 1,000 cc. of bloody urine was found in the peritoneal cavity.

Of the later symptoms, discoloration and edema of the suprapubic area, the inner sides of both thighs, the perineum and the scrotum in the male and the vulva in the female are perhaps the most common. Peritonitis is not a frequent early sign of an intraperitoneal rupture; urine may fill the pelvis and lower part of the abdomen with little or no peritoneal reaction; occasionally, in all probability as a consequence of antecedent cystitis, a generalized peritonitis may develop within twenty-four hours of the accident. Occasionally a patient will make a leading statement which ought to put the surgeon on the right track. One man said he "felt something give way inside him"; Peak [16] had a 20 year old patient who declared "he knew his bladder was ruptured because he could feel blood or urine oozing toward the left side of his pelvis and there was a sensation of warmth in his side."

DIAGNOSES IN THE FIFTY ANALYZED CASES

In the fifty analyzed cases a correct primary diagnosis was made in thirty-four, or 68 per cent; a delayed diagnosis in ten, or 20 per cent, and a missed diagnosis in six, or 12 per cent.

Incorrect diagnoses included ruptured gastric ulcer, acute gastritis, abdominal bruise, appendicitis, pneumonia, pyelitis, strangulated hernia, hematoma, cerebral concussion and intestinal obstruction.

The importance of early diagnosis and operation is graphically brought out by the analyses presented by the following authors:

Negley: [17] Operation in first twelve hours, 11 per cent mortality; operation in twelve to twenty-four hours, 22 per cent mortality; operation on second day, 43 per cent mortality.

Rouvillois and Ferron: [18] Operation in first twelve hours, 11 per cent mortality; operation on second day, 43.7 per cent mortality.

Cook County Hospital series: Operation within twenty-four hours, 26 per cent mortality; delayed operation, 45 per cent mortality.

MORTALITY

It is well nigh impossible to estimate correctly the mortality of bladder ruptures per se. Multiple injuries, alcoholism, or antecedent pathologic changes in the bladder wall all tend to obscure the situation. Single cases are usually reported if the patient recovers; it is only through analysis of a series of cases that a fair estimate of the prognosis of bladder ruptures can be obtained. While modern diagnostic measures and proper technic can now refute Hamilton's dictum that "a ruptured bladder inevitably means death of the patient," there is still much room for improvement.

TABLE 4.—*Analysis of Fifty Cases of Bladder Rupture Since 1926*

Type	Number of Cases	Mortality
Intraperitoneal	35	48%
Extraperitoneal	15	42%

Up to the year 1907, Besley's twenty-five cases showed a mortality of 78 per cent. Of thirteen patients admitted to the same hospital during the years 1927-1929, eight died, a mortality of 61 per cent. In the thirty-five cases reported since 1905 and tabulated by Hagenbuch [19] the mortality was 60 per cent. Negley reviewed 124 cases with a mortality of 53 per cent. The average mortality in the fifty cases analyzed in this report was 45 per cent, with only a 6 per cent difference between intraperitoneal and extraperitoneal rupture.

A review of the combined reports of the past few years proves conclusively that there is still a mortality of more than 50 per cent in cases of bladder rupture and that the mortality in this type of trauma could be easily lowered to 20 per cent or less if early diagnoses were more frequently made and operative procedures promptly carried out.

TREATMENT

Expectant Treatment.—In rare instances in which, in spite of pain, vesical tenesmus and bloody urine, the systemic reaction is mild or absent, one may be justified in adopting an expectant attitude, being prepared to operate as soon as the clinical picture changes for the worse. Particularly is this true in (1) incomplete ruptures, (2) small linear tears of 1 cm. or less and (3) traumatic diverticulitis of the bladder. In all three

15. Vaughan, R. T., and Rudnick, D. F.: A New and Early Sign of Ruptured Bladder, J. A. M. A. **83**: 9 (July 5) 1924.
16. Peak, J. H.: Traumatic Rupture of Urocyst with Report of Case, Kentucky M. J. **24**: 190-192 (April) 1926.
17. Negley, J. C.: Rupture of Bladder, J. Urol. **18**: 307-314 (Sept.) 1927.
18. Rouvillois and Ferron, quoted by Negley (footnote 17).
19. Hagenbuch, M.: Rupture of Uterus with Laceration of Bladder, in Connection with Personal Case, Ztschr. f. Geburtsh. u. Gynäk. **89**: 810, 1925.

conditions, a prerequisite to nonsurgical treatment is a satisfactory cystoscopic examination. The catheter-à-demeure should always be used for at least one week, following which the patient must be instructed to avoid diurnal or nocturnal bladder distention for another ten to fourteen days. Two typical cases are included in this series:

CASE 1 (Ravenswood Hospital, Dr. E. B. Williams).—In a middle-aged woman, the victim of an automobile accident,

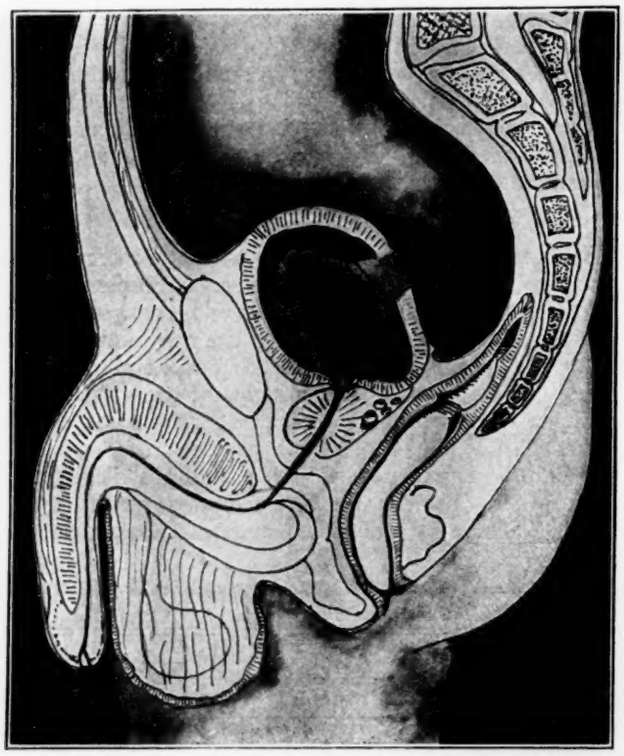

Fig. 1.—Intraperitoneal rupture.

roentgenography showed fracture of the right radius and styloid process of the right ulna; fracture of both the horizontal and descending rami on both sides, with some slight downward displacement of the pubic fragments anteriorly.

The patient voided bloody urine on the day of the accident and complained of pain in the pubic region with vesical tenesmus. On the second day the vulva became edematous. Cystoscopic examination revealed a 1 cm. tear just to the right of the median line and about 2 cm. from the urethra. Expectant treatment was advised and carried out. Bloody urine passed by catheter for more than one week, but after a somewhat stormy and protracted convalescence the patient left the hospital cured.

CASE 2 (reported by Caulk[12]).—A girl, aged 6 years, had a horse step on the lower part of her abdomen after she had slipped and fallen down on the floor of a farm stable. Her bladder was full at the time of the accident. The immediate complaints were soreness and tenderness over the lower part of the abdomen, vesical tenesmus and inability to urinate. Three hours later the leukocyte count was 24,000. A catheter was introduced in the bladder and 200 cc. of bloody urine was withdrawn; then 100 cc. of sterile fluid was injected and withdrawn. A roentgenogram did not show fracture of the pelvis. The patient was treated expectantly with a catheter-à-demeure. On the sixth day the bladder was examined cystoscopically and a rent about 2 cm. in diameter showed itself. It was situated on the base of the bladder just lateral to the right margin of the trigon, approximating the internal sphincter. The hole was irregular, ragged and covered with a great deal of fibrin and slough. The rest of the bladder was perfectly normal. At no time, apparently, was there any clinical evidence of urinary extravasation. Using a contrast solution, Caulk took successive roentgenograms which showed progressive obliteration of the diverticulum. The child made a complete recovery.

It is to be noted that in both cases no clinical evidence of urinary extravasation manifested itself. In spite of their happy outcome, the expectant line of treatment will rarely be advisable, certainly in not more than 5 per cent of all cases.

Operative Treatment.—1. Extraperitoneal rupture: (*a*) A median suprapubic incision is made through the skin and fascia; the fibers of the pyramidal muscles are separated by blunt dissection and the fat and loose connective tissue of the prevesical space are pushed to one side. It should be borne in mind that, in making an incision just above the pubis, three layers of fat are encountered: (1) the fat between skin and muscles; (2) the fatty pad between the posterior surface of the muscles and the transversalis fascia, and (3) the prevesical fat of the space of Retzius. The lacerated bladder being empty, care must be taken not to penetrate the peritoneal cavity at this stage. All urine and blood should be sponged out and the space of Retzius freed from clots.

(*b*) The peritoneal reflexion is pushed up and fine artery forceps are placed on the upper margin of the tear. After the bladder has been irrigated with warm physiologic solution of sodium chloride, the interior is

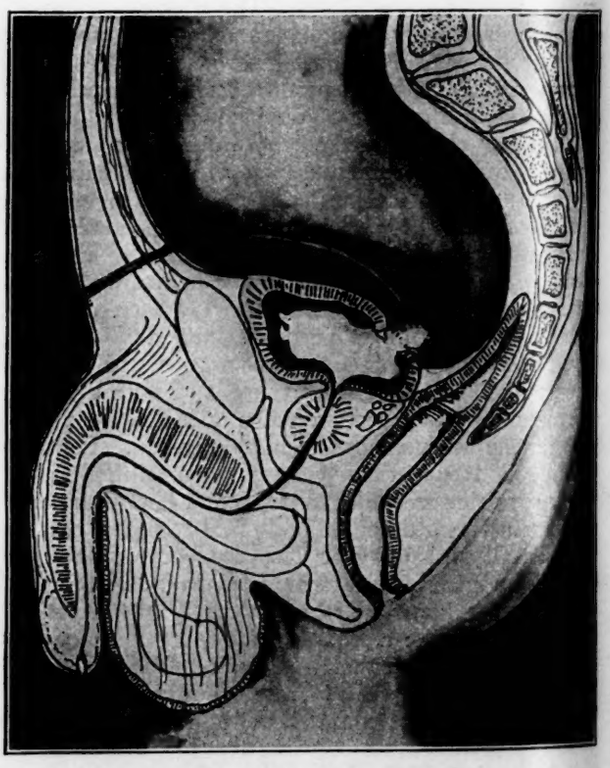

Fig. 2.—Operative treatment of intraperitoneal rupture: drain in cul-desac after suture of tear.

examined for possible bone spicules and these are removed if found.

(*c*) The vesical tear should be sutured by means of nonpenetrating sutures; any suture material penetrating through the bladder mucosa will act as a nucleus for future stone formation. Two layers of sutures are required: (1) a continuous number 0 catgut suture including all coats but not traversing the mucosa and

(*2*) a Lembert or Cushing right angle suture of fine linen or silk which includes the surrounding fascia. By utilizing superficial fascia and some fibers of the pyramidalis muscles, it is usually possible to obliterate the prevesical space almost completely.

(*d*) A small cigaret drain is left in the Retzius space and the skin incision closed. If the tear is a linear one, its edges are not badly lacerated, and the lines of

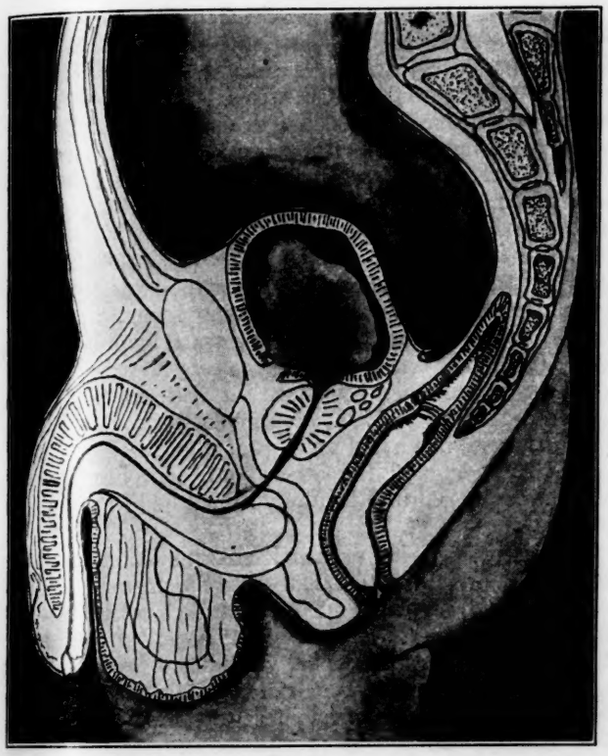

Fig. 3.—Extraperitoneal rupture.

suture do not tear readily, the catheter-à-demeure may be dispensed with. If one is in doubt, 100 cc. of saline or boric acid solution may be injected through the urethra and the space of Retzius watched for leakage. Should any fluid appear, the closure may be reinforced with one or more additional silk or linen sutures and the catheter-à-demeure used. If omitted, the latter can always be introduced during convalescence should the bladder show signs of overdistention or of extravasation.

In the presence of a badly lacerated anterior wall, when the sutures tear out, it is safer not to attempt any closure of the bladder wall. A tube drain should be placed in the bladder and anchored to the skin, and the space of Retzius packed with gauze. On the following day a catheter is introduced through the urethra. Vesical drainage should be maintained for one week; urethral drainage, a few days longer. It will take from three to six weeks for the vesical fistula to close.

(*e*) Should a fracture of the pelvis be present, it is best treated by using the canvas sling suspended to a Balkan frame devised by Douglas P. Murphy, late of the American Expeditionary Forces.[20]

(*f*) One should watch for signs and symptoms of urinary extravasation, especially along the retroperitoneal spaces. Systemic reactions such as chills, sudden rise in temperature and high leukocyte count should initiate a careful examination of all possible fascial plane infiltrations. Multiple incisions are often required in these late complications. In a patient in the Cook County Hospital series, a boy, aged 14, a correct diagnosis had not been made for eleven days. The roentgenogram was positive for fracture of the pelvis; the boy complained of pain and tenderness in the lower part of the abdomen, but, because the urine was free from blood and albumin, the vesical injury was overlooked until he was transferred. The ruptured bladder was repaired, but four days later he developed signs of a left perinephric abscess which necessitated a nephrectomy. Five weeks later the patient was discharged from the hospital, cured. A correct primary diagnosis would have prevented the loss of his left kidney.

2. Intraperitoneal rupture: (*a*) The suprapubic incision is prolonged upward as far as the umbilicus and the peritoneal cavity is entered. All bloody urine is suctioned out, the sigmoid flexure is retracted, with loops of small intestine, and all blood clots are mopped out from the culdesac.

(*b*) When the bladder tear has been identified, fine forceps are placed on its upper extremity and gentle traction is made in order to bring the torn edges in alinement. The rent is closed, as in the extraperitoneal type. Some surgeons test the efficacy of their sutures by injecting boric acid solution into the bladder; this step is not recommended in intraperitoneal tears. The rupture has, in a few instances, been repaired through a

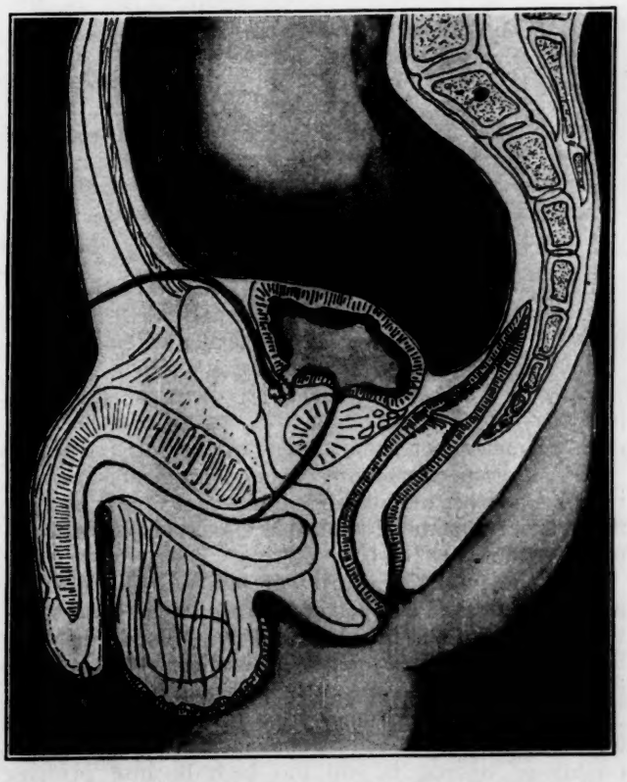

Fig. 4.—Operative treatment of extraperitoneal rupture: drain in space of Retzius after suture of the tear.

cystotomy incision; this leaves two lines of scar tissue instead of one and lessens bladder distensibility. A catheter-à-demeure should be passed through the urethra and kept there for from three to five days.

(*c*) In desperate cases (severe shock, multiple injuries), marsupialization of the laceration may be performed by freeing the parietal peritoneum around the

20. De Tarnowsky, George: Emergency Surgery, p. 427.

abdominal incision and coapting its edges to the bladder rent. Malcolm used this method in the repair of a 2 inch tear in the posterior bladder wall, leaving a drainage tube for nine days. His patient was cured in six weeks. Occasionally the tear may be as low down as the margin of the trigon and sutures may be difficult or impossible to place accurately unless the surgeon has very sharply curved needles, perfect exposure and light and a dry field. In such cases one should place a catheter through the tear into the bladder, suture the upper portion as well as possible around it and place a modified cigaret drain against the lower, unsutured or partially sutured bladder wall. This drain should have a rubber tube in its center with gauze freely protruding from its lower end, so that it can be packed against the posterior bladder wall. Aspiration of the pelvic cavity can be carried out by means of the central tube. The space of Retzius should be obliterated by means of interrupted catgut sutures and the skin incision closed with the drain issuing from its upper angle. After operation, aspiration of the culdesac tube should be done three times daily; when it has yielded negative results for three or four days, the entire cigaret drain is removed. The catheter-à-demeure can be removed as soon as the peritoneal sinus created by the cigaret drain is closed. It should always be used regardless of the method of treating the vesical tear. Negley mentions what ought to be a valuable aid in small lacerations. When starting the anesthetic, he injects 10 cc. of an 0.8 per cent solution of indigocarmine intravenously. The dye will appear in the bladder urine and help locate the tear.

TABLE 5.—*Operative Technic in the Fifty Analyzed Cases*

Suture of tear	39 cases
Drainage without suture	5 cases
Suprapubic bladder drainage	2 cases
Closure of tear through bladder incision	1 case
Marsupialization	1 case
No operation (expectant)	2 cases

CONCLUSIONS

1. Automobile transportation has multiplied the number of daily collisions. Both the driver with the steering wheel in front of him and the occupants of the front seat with the dashboard in front of them are likely to suffer trauma of the lower part of the abdomen during collisions or sudden stops of the automobile.

2. A large percentage of reported accidents occurred in persons with overdistended bladders; lying against the anterior abdominal wall, this viscus will burst without any trauma to the bony pelvis.

3. While multiple injuries or loss of consciousness may at first cloud the diagnosis, pain in the lower portion of the abdomen, vesical tenesmus, bloody urine or inability to urinate should be sufficient to indicate immediately to the surgeon the probable bladder lesion.

4. The average mortality from bladder lesions, while unquestionably increased by coincident injuries to other organs or tissues, is still too high because primary diagnoses are not being made frequently enough.

5. Rupture of the bladder is as much a surgical emergency as "acute abdomen" and delay in operating is equally dangerous.

6. Closure of the tear by suture, prevesical or culdesac drainage and catheter-à-demeure are the three essential operative steps. In individual cases the surgeon may have to modify this technic.

30 North Michigan Avenue.

CULTIVATION OF BRUCELLA FROM THE STOOLS AND BILE

FURTHER OBSERVATIONS *

HAROLD L. AMOSS, M.D.
AND
MARY A. POSTON
BALTIMORE

Further experience has resulted in the isolation of *Brucella* from seventy-eight specimens of stools from six patients since July, 1929. In one of these patients, *Brucella* was obtained in cultures from B bile obtained before operation by duodenal drainage and from the contents of the gallbladder removed by Dr. J. M. T. Finney.[1] Bull and Gram [2] isolated *Brucella* from the gallbladder contents at operation, but we have been unable to find any references to the isolation of this organism from bile obtained in duodenal drainage.

The essential procedure of the method [3] is to clump the organisms present with immune serum added to the stool suspension and to concentrate by differential centrifugation. The final precipitate is plated on stock eosin-methylene blue plates, made with meat extract agar adjusted to p_H 7.4. Four plates are seeded in each instance, incubated at 37 C.; two in 10 per cent carbon dioxide, and the others outside. Small clear colonies are fished into broth and identified in the usual manner.

Two workers, in personal communications, have reported their failure to isolate *Brucella* from the stools by this method. Consequently, parallel cultures were made with plates prepared with meat extract agar p_H 7.4 and others in which Huddleston's liver agar p_H 6.6 formed the basis. In ten stools known to be positive the two series of plates gave identical results. The colonies on the liver agar-eosin-methylene blue plates were no larger, nor did they appear earlier, than on the plates prepared with beef infusion agar at p_H 7.4.

Teague Medium

Meat extract agar p_H 7.4	100 cc.
Sucrose (20 per cent solution)	5 cc.
Lactose (20 per cent solution)	5 cc.
Yellow eosin (4 per cent aqueous solution) W. S. (E. Leitz, New York)	1 cc.
Methylene blue (1 per cent aqueous solution) (Bell and Coleman for bacilli)	1 cc.

The eosin-methylene blue plates are prepared from the materials listed in the accompanying table. The agar is melted and cooled to 45 C.; the sucrose, lactose, eosin and methylene blue are added. The eosin should be well distributed in the agar before the methylene blue solution is added.

COMMENT

Since *Brucella* in general is reported to grow more easily on liver agar, it is logical to use this medium in the isolation of these organisms from the stools. In these experiments, apparently the use of the liver medium as a basis for the eosin-methylene blue plates

* From the Biological Division, Medical Clinic, Johns Hopkins University and Hospital.

1. Full details concerning this patient, H. P., will be reported by Dr. Hugh R. Leavell.

2. Bull, P., and Gram, H. M.: Cholecystitis with Pure Culture of M. Melitensis, Norsk Lægevidensk. **9**: 1026, 1911.

3. Amoss, H. L., and Poston, Mary A.: Undulant (Malta) Fever, J. A. M. A. **93**: 170 (July 20) 1929.

did not improve the method. Yet it is possible that some strains may grow better on the liver medium and it is suggested that, in planting stool specimens suspected of containing *Brucella,* the liver medium be used in parallel with the meat extract agar.

So far as we know, this is the first time that *Brucella* has been isolated from bile *intra vitam.*

Since the publication of the first article, our attention has been called to the fact that Eyre,[4] in 1908, obtained on plates seeded with the light colored feces obtained at autopsy from the colon of a fatal case of malta fever "a mixed growth of a large variety of bacteria, including *Micrococcus melitensis.*" We wish to give him credit for the observation in the following quotation from his paper: "By emulsifying some of the growth in saline solution, precipitating the micrococci by the addition of a powerful agglutinating serum, and again plating the sedimented micrococci, I was able to obtain it in pure culture."

Eyre was able also to grow *Brucella* from the gallbladder of an infected guinea-pig.

There is under observation in our wards at present a patient who experienced a mild attack of *Brucella* infection and is now convalescent. The organism was obtained from blood culture, but twelve specimens of stools have been negative for *Brucella.* It is probable that the organisms may not be present in the stools in every case.

SUMMARY

Brucella has been isolated seventy-eight times from the stools of six patients.

The use of liver agar as the basis for the eosin-methylene blue plates offers no improvement over meat extract agar.

Brucella has been obtained in cultures from the bile procured by duodenal drainage and from the contents of the gallbladder at operation in a case of chronic *Brucella* infection.

The causative organisms may not always be present in the stools of acute cases of *Brucella* infection.

4. Eyre, J. W. H.: The Milroy Lectures on Melitensis Septicemia (Malta or Mediterranean Fever), number 2, Lancet **1**: 1747, 1908.

Posterior Pituitary Extracts and Dermal Pigments.—Although the standardized rat threatens to usurp the place once occupied by the frog as the principal contributor to physiological knowledge, the frog and its larvae still have ample contributions to make. Not only has embryology taught us that the rudimentary hypophysis is the first of the future endocrine organs to be differentiated, but in the tadpole its exposed position lays it open to surgical removal. When so removed, as first shown (1916) independently and brilliantly both by Allen and by Smith, the growth of the tadpole is checked, metamorphosis does not occur, and the pigmentary system is so affected that the embryo acquires a silvery or albinous appearance owing to the contraction of the cutaneous melanophores. Reimplantation of the hypophysis or the parenteral injection of fresh pituitary emulsion serves to counteract all these effects; but of special interest is the fact, of late strongly reemphasized by Allen, that transplants of the pars intermedia from adult frogs into these albinoid tadpoles, while without effect on growth or metamorphosis, serve within a few hours permanently to expand the melanophores with darkening of the skin. Here, then, is evidence of still another peculiar property of posterior lobe extracts which must be taken into consideration—their influence on the metabolism of dermal pigments.—Cushing, Harvey: Lister Memorial Lecture: Neurohypophysial Mechanisms from a Clinical Stondpoint, *Lancet,* July 19, 1930.

Clinical Notes, Suggestions and New Instruments

DIABETES INSIPIDUS AND OSTEITIS FIBROSA POLYCYSTICA

ABRAHAM SOPHIAN, M.D., KANSAS CITY, MO.

In the case of diabetes insipidus here recorded, the following rare and interesting features deserve emphasis: (1) the exceedingly rare complication of an extensive osteitis fibrosa polycystica; (2) a most unusual degree of uniform pulmonary fibrosa of interesting origin.

REPORT OF CASE

A man, aged 39, American, had apparently been well until the age of 25, when an excessive thirst developed; at times the patient drank as much as 15 gallons (60 liters) of water a day with corresponding polyuria. This condition continued uncontrolled until he reported to me seven years later. With the establishment of diabetes insipidus, pituitary extract (posterior lobe) therapy was stated with complete control of the symptoms.

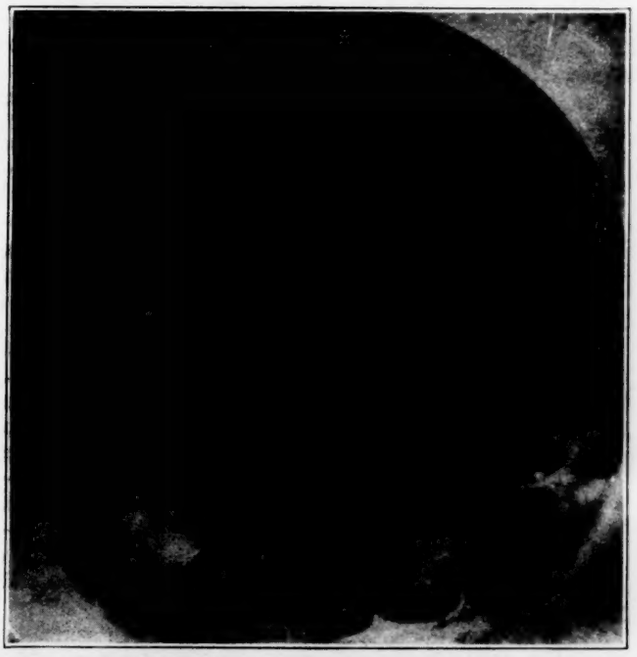

Fig. 1.—Large destructive bone area in right frontal region, irregular in outline, without evidence of new bone formation.

Impotence developed shortly after the onset of the polydipsia and has continued unimproved. The patient showed steady loss of vigor, strength and weight to a total of 60 pounds (27 Kg.).

An extensive generalized eczema developed early and has been a persistent feature of the disease.

The patient also complained early of persistent joint symptoms referred to the back, shifting to the left hip and then to the left knee, the latter joint becoming red, acutely tender and swollen. This picture of acute joint pain, varying degree of swelling and reduction in function with periods of remission in pain, but persistent swelling and disability, was characteristic of the joint disturbance throughout. It is also of interest that the widely scattered bone lesions later described were not painful, even when accompanied by considerable bone defect, as in the case of the large defect in the right frontal bone.

A history of striking extensive focal infection was present. At 10, the patient had a severe crop of boils. At the age of 25 he had acute appendicitis with operation. At 26 he had considerable trouble with his teeth, which necessitated complete extraction. Later there followed a foul nasal discharge for ten

years, caused by an extensive polypoid purulent disease of the antrum; this was cured by radical operation.

Analysis of the important observations led to a diagnosis of osteitis fibrosa polycystica.

A roentgen study was made of many bones showing a generalized type of bone disease with uniform characteristic lesions. The long bones, the lower end of each femur, and the upper end of each humerus, the upper end of each tibia, the greater trochanters, the lumbar vertebra, the bones of the pelvis and the cranium all showed cystic areas up to 3 by 5 cm. in size, surrounded by areas of bone absorption with no evidence of repair and confined to the medullary portion of the bone.

The roentgen studies were made and diagnosis was established by Dr. Ira Lockwood of the Research Hospital.

Heard, Schumacher and Gordon[1] have stressed the relationship of diabetes insipidus and osteitis fibrosa polycystica and the apparent improvement in both conditions under treatment with pituitary extract.

The case reported here has no traumatic element; it is apparently related to the diabetes insipidus. The evidences of endocrine disturbance are numerous. The bone disease has been steadily progressive and has shown no response over a period of three years that it has been under treatment with pituitary extract.

Interesting observations have appeared in the literature on the relationship of parathyroid disease (hyperparathyroidism) to generalized bone disease and notably to osteitis fibrosa polycystica. This subject was recently reviewed by Barr and Bulger.[2] Most writers agree that hyperparathyroidism produces a hypercalcemia, the calcium being extracted from the bones, thereby producing bone disease. In turn there is excessive excretion of calcium, and metastatic calcium deposits have been found in the lungs, kidneys, stomach, heart muscle and thyroid. The lung deposit is of interest in explaining a most rare degree of pulmonary calcification and fibrosis in this case.

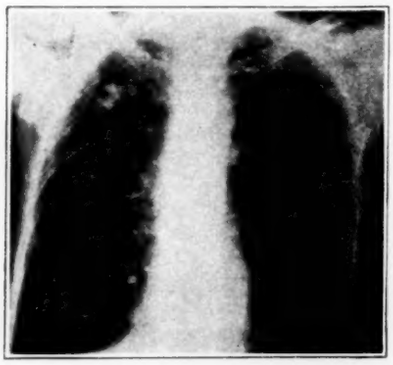

Fig. 2.—Extensive fibrosis with calcification. The previous print, made in 1927, showed a normal chest.

Improvement in the bone decalcification has been reported by some observers after the removal of parathyroid tumors. The question of a parathyroid operation in the absence of a tumor is, however, worthy of serious consideration.

The bone cysts and tumors in this disease have been found most frequently in the long bone; but the jaw, pelvis and head have also been involved. Microscopically the tumor lesions have shown hemorrhage, fibrosis and many giant cells, simulating giant cell sarcoma. There is also a localized or more general bone decalcification suggestive of osteomalacia. The case here reported showed no increase of blood calcium, and the urinary calcium was not determined.

THERAPEUTIC OBSERVATIONS

The only specific remedy is pituitary extract, which controls the polydipsia but has no effect on the bone lesions; the dose is inconstant and the drug is as effective by nasal spray as by the hypodermic route, with less constitutional reaction and gastro-intestinal upset.

702 Argyle Building.

1. Heard, J. D.; Schumacher, F. L., and Gordon, W. B.: The Association of Diabetes Insipidus with Osteitis Fibrosa Polycystica, Am. J. M. Sc. **171**: 38 (Jan.) 1926.
2. Barr, D. P., and Bulger, H. A.: The Clinical Syndrome of Hyperthyroidism, Am. J. M. Sc. **179**: 449 (April) 1930.

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY OF THE AMERICAN MEDICAL ASSOCIATION HAS ADOPTED THE FOLLOWING REPORT.

H. J. HOLMQUEST, Secretary.

SUNLIT ULTRAVIOLET GLASS ACCEPTABLE

The window glass known as "Sunlit," submitted to the Council on Physical Therapy for consideration by Semon Bache & Company, New York, is stated to be a glass that transmits the biologic ultraviolet rays of the sun.

According to a test conducted by the Bureau of Standards, this glass does transmit an appreciable percentage of the solar rays which have been shown to have antirachitic properties.

The Bureau of Standards report presents data on the transmission of two samples of Sunlit glass for radiant energy of various wavelengths both before and after exposure for ten hours to the total radiation from a 110 volt quartz mercury arc lamp at a distance of about 15 centimeters.

Sample Z 26—Thickness 1.88 mm.

Wavelength in Millimicrons	Per Cent Transmission	
	New	After Exposure to Mercury Arc
280	41.0	11.5
302	75.4	49.1
313	81.2	60.7
365	91.1	81.7

Sample Z 32—Thickness 2.08 mm.

Wavelength in Millimicrons	Per Cent Transmission	
	New	After Exposure to Mercury Arc
280	36.8	9.2
302	71.7	46.2
313	78.5	59.2
365	89.8	79.6

The Council on Physical Therapy declares Sunlit Ultraviolet Health Glass acceptable for inclusion in its list of accepted apparatus for physical therapy.

The Chemical Laboratory

THE FOLLOWING IS A REPORT OF THE AMERICAN MEDICAL ASSOCIATION CHEMICAL LABORATORY.

PAUL NICHOLAS LEECH, Director.

SYNTHETIC THYROXINE

Examination of Synthetic Thyroxine, Roche

The story of the discovery and isolation of thyroxine is legend to the medical profession. It will be recalled that, following a series of diligent researches, Kendall isolated the preparation from the thyroid gland; he had considered it to be *4,5,6 tri*hydro, *4,5,6 tri* iodo-*alpha*-oxy-*beta* indole propionic acid. Such was the status of the preparation when the U. S. Pharmacopeia was revised and thyroxine was included. It is interesting to note the definition in the U. S. Pharmacopeia X: "Thyroxin [$(C_5H_5ONI_2).C_2H_4COOH$] is an active principle obtained from the thyroid gland and contains not less than 63 per cent of iodine."[1]

About three years ago, Harington and his co-workers at Cambridge, England, retraced the steps so well laid down by Kendall. They arrived at the conclusion that the Kendall formula was not correct and that thyroxine was the tetra iodo derivative of the oxyphenylether of tyrosine. Later this conclusion of theirs was confirmed by the preparation of thyroxine synthetically.

1. According to the U. S. Pharmacopeia X, "thyroxin" is spelled without the final "e." In view of later developments, however, it is apparent that thyroxine should be spelled with the final "e" (as in the case of other basic amino substances) in order to be in keeping with scientific nomenclature.

Since then the sequence has been natural. Synthetic thyroxine has been prepared by pharmaceutic laboratories abroad; one brand has been submitted to the Council on Pharmacy and Chemistry. A particularly interesting fact is that synthetic thyroxine cannot be considered an official drug because the U. S. Pharmacopeia definition requires that thyroxine must be the active principle *obtained from the thyroid gland.* In view of this, therefore, it was necessary for the American Medical Association Chemical Laboratory, at the request of the Council on Pharmacy and Chemistry, to examine synthetic thyroxine and to publish standards to take care of the nonofficial product, even though in the end the identity of synthetic thyroxine and thyroxin U. S. P. might be the same. It is quite likely that in future editions of the U. S. Pharmacopeia the revision committee will benefit from the experience with thyroxine and not make definitions in the Pharmacopeia quite so exclusive.

EXAMINATION OF SYNTHETIC THYROXINE, ROCHE

One original bottle (1 Gm.) of Synthetic Thyroxine, Roche, and three bottles [(15 cc.) of a 2 per cent solution] (the Hoffman-La Roche Chemical Works, Inc., New York City) were submitted to the A. M. A. Chemical Laboratory for examination at the request of the Council on Pharmacy and Chemistry.

The product is stated to be β-[3,5 diiodo-4-(3′,5′ diiodo-4′-oxyphenyl),-phenyl]-α-aminopropionic acid, is the diiodo-*p*-oxyphenylether of diiodo-tyrosine. No chemical description, physical properties, tests for identity and purity, or methods of assay, other than its molecular weight is 777, were presented by the distributor.

The specimen of Synthetic Thyroxine-Roche presented occurred as a fine, yellowish white, granular, odorless powder. The product was found to melt with decomposition (iodine vapors were evolved) between 225 and 228 C. The Laboratory found it to comply with the physical properties, tests for identity and purity as given for thyroxin described in the United States Pharmacopeia X. The Laboratory, however, substituted the Carius method for the determination of iodine instead of the assay described by the Pharmacopeia.

The results of the quantitative determinations were as follows:

	Theory	Found by the A. M. A. Chemical Laboratory
Ash	.....	Not weighable
Loss over sulphuric acid	.....	0.65 per cent
Iodine	65.36 per cent	66.35 per cent
Nitrogen	1.80 per cent	Not determined

The Laboratory elaborated standards for inclusion of Synthetic Thyroxine-Roche in New and Nonofficial Remedies which appear as part of the description under the acceptance of the product. (See Council on Pharmacy and Chemistry report in this issue, page 485).

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, Secretary.

DIPHTHERIA TOXOID (See New and Nonofficial Remedies, 1930, p. 364).

Cutter Laboratory, Berkeley, Calif.

Diphtheria Toxoid-Cutter: Also marketed in packages of one 45 cc. vial.

SYNTHETIC THYROXINE. — β [3′, 5′-diiodo-4′-(3, 5 diiodo-4-hydroxyphenoxy) phenyl]-α-aminopropionic acid. — $HOC_6H_2I_2.OC_6H_2I_2.CH_2CH(NH_2)COOH$. A tetraiodo-derivative of *p*-hydroxyphenyl ether of tyrosine; it contains not less than 65 per cent of iodine.

Actions and Uses.—See general article, Thyroxin, New and Nonofficial Remedies, 1930, p. 403.

Dosage.—See general article, Thyroxin, New and Nonofficial Remedies, 1930, p. 404.

Manufactured by Hoffmann-LaRoche, Inc., Nutley, N. J. No U. S. patent or trademark.

Ampuls Synthetic Thyroxine-Roche, 1.1 cc.: Each cubic centimeter contains 1 mg. of synthetic thyroxine-Roche.

Solution Synthetic Thyroxine-Roche: Each cubic centimeter contains 2 mg. of synthetic thyroxine-Roche.

Tablets Synthetic Thyroxine-Roche, 1 mg.

Synthetic thyroxine is a white or slightly yellow, needle-like, odorless, crystalline powder.

It is insoluble in water and practically insoluble in alcohol or the other more common organic solvents, but in the presence of mineral acids it dissolves in alcohol, is soluble in solutions of the alkali hydroxides, and on saturation with sodium chloride the sodium salt of thyroxine separates. Synthetic thyroxine melts with decomposition between 225 and 228 C.

Transfer about 0.1 Gm. of synthetic thyroxine to a small hard glass test tube containing a piece of sodium about the size of a pea, previously melted; after the first violent action has ceased, the tube and contents are heated until decomposed: vapors of iodine are evolved; the tube and contents are allowed to cool; add 10 cc. of water; the mixture is boiled for a few minutes; filter through paper and divide into two portions. To one portion add a few drops of sodium hydroxide solution followed by the addition of a few drops of freshly prepared ferrous sulphate solution and finally a few drops of ferric chloride solution and, after agitation, carefully add diluted hydrochloric acid until the iron hydroxides just dissolve: a very finely divided blue precipitate results; to the other portion add 1 cc. of concentrated nitric acid, boil, cool and add 1 cc. of silver nitrate solution: a curdy yellow precipitate results, insoluble in a large excess of stronger ammonia water. Add about 0.01 Gm. of synthetic thyroxine to 1 cc. of a one per cent solution of triketohydrindene-hydrate (*Ninhydrin*) solution and boil for one minute: a blue color results.

Place about 0.03 Gm. of synthetic thyroxine in a 50 cc. glass stoppered cylinder, add 30 cc. of water, shake the contents for five minutes, filter through paper: separate portions of 2 cc. each of the filtrate yield no opalescence with 0.5 cc. of diluted nitric acid and 0.5 cc. of silver nitrate solution (*soluble halides*); no turbidity with 0.5 cc. of diluted nitric acid and 0.5 cc. of barium nitrate solution (*sulphates*); no coloration or precipitation on saturation with hydrogen sulphide (*salts of heavy metals*).

Incinerate about 0.05 Gm. of synthetic thyroxine, accurately weighed: the residue is negligible. Dry about 0.05 Gm., accurately weighed, for 24 hours over sulphuric acid in a partial vacuum: the loss in weight should not exceed 1 per cent. Transfer about 0.1 Gm., previously dried for 24 hours over sulphuric acid, accurately weighed, to a bomb tube; determine the iodine content by the Carius method: the amount of iodine found should not be less than 65 per cent, nor more than 66.5 per cent.

COMMITTEE ON FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COMMITTEE ON FOODS OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION, AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

RAYMOND HERTWIG, Secretary.

HEINZ RICE FLAKES PREPARED WITH PURE RICE CELLULOSE

Manufacturer.—H. J. Heinz Company, Pittsburgh.

Description.—A flaked rice containing added rice cellulose, yeast, salt and milk sugar.

Manufacture.—Milled rice, rice cellulose (7 per cent of weight of rice), yeast (7 per cent), table salt (2.75 per cent), and milk sugar (0.5 per cent) are cooked in a rotary pressure cooker, dried with air, flaked, toasted, cooled and packed.

The rice cellulose used is derived from rice hulls. The ground hulls are digested with strong caustic soda solution under pressure (which removes silica, lignocellulose, pentosans and other organic constituents), digested with weak sulphuric acid, washed with water, dried and ground.

The rice cellulose increases the indigestible residue, the yeast and salt add flavor, and the milk sugar improves the color of the toasted flakes.

Composition.—

	Per Cent
Moisture	1.5
Ash	3.1
Fat	0.3
Protein	7.8
Total carbohydrates (including crude fiber)	80.6
Crude fiber	4.4
Reducing sugars	0.1
Sucrose	0.0
Dextrin	18.7
Soluble starch	37.4
Gelantinized starch	23.4

Claims of Manufacturer.—A breakfast cereal with a unique form of water absorptive indigestible cellulose that is less irritant than wheat bran, which makes it distinctly beneficial in

an anticonstipative diet. It is an energy food prominently combined with a new type of laxative feature.

RY-KRISP

Manufacturer.—Ralston Purina Company, St. Louis.

Description.—A whole rye grain wafer flavored with salt.

Manufacture.—Flaked whole rye, water and salt are beaten with air to a foamy structure. The mass is rolled into wafers and baked.

Composition.—

	Per Cent
Moisture	6.0
Minerals (including added salt)	3.7
Fat	2.0
Protein	13.1
Carbohydrate	73.9
(*a*) Crude fiber	2.2
(*b*) Pentosans	9.8
(*c*) Starch	42.4
(*d*) Dextrins, etc.	19.5

Claims of Manufacturer.—Ry-Krisp can be used in cases of wheat allergy. The wafers encourage thorough chewing. Its minerals are relatively higher than those of refined cereals. Its bran and cellulose offer means to increase the bulk factor in an anticonstipative diet.

MERRELL-SOULE POWDERED SKIM MILK

Manufacturer.—The Borden Company, New York.

Description.—A standard, uniform, practically fat free, powdered skim milk.

Preparation.—Fresh whole milk from inspected cattle after chemical and biologic examination is mechanically separated. The skim milk is pasteurized, condensed by distillation of 40 per cent of its water in vacuum pans, again pasteurized at 155 F., and finally dried by the spray process. The canned powder is again processed.

Composition.—

	Per Cent
Fat	1.0
Protein	36.5
Lactose	51.8
Mineral matter	7.9
Moisture	2.5

Claims of Manufacturer.—This milk powder offers physicians a near approach to a fat-free milk. Combined with "Klim Powdered Whole Milk," dilutions of increased milk-fat percentage may be obtained if desired.

CURTICE BROTHERS CERTIFIED NURSERY FOODS

Manufacturer.—Curtice Brothers Company, Rochester, N. Y.

Description.—Sieved spinach, carrots and tomato, and vegetable purée, prepared by special scientific process and equipment of Curtice Brothers for greater conservation of the vitamins of the fresh product than what is attainable by home sieving and cooking. The water content approximates that of the natural raw vegetables.

Preparation.—The processing equipment largely eliminates the destructive action of air on the vitamins and was developed specially for Curtice Brothers and patent has been applied for. The process thereby assures greater protection against vitamin loss, in whole or part, than do the ordinary commercial processes or home methods.

Claims of Manufacturer.—These certified nursery foods are especially prepared for babies and young children. The manufecturer guarantees a declared minimum number of units of vitamins A, B and C for the respective products. This information is carried by the can labels. The vegetables provide food energy, mineral salts to build bones, alkaline salts to counteract acidosis, roughage, and iron for the blood.

ALP ROSE CANNED FOODS

Distributor.—John Sexton and Company, Chicago.

Description.—Canned fruits and vegetables, packed in water without added sugar or salt, and intended for use in restricted diets. The label bears average composition for available carbohydrates, protein and fat.

Preparation.—Vegetables: The vegetables are gathered when in most succulent condition, washed, graded as to size, and preheated in warm water. The water and vegetables are canned, sealed and then processed at 245 F. for thirty minutes (number 2 cans).

Fruits: Mature selected fruit is used. It is graded as to size, cored, pitted, or stemmed if necessary, thoroughly washed, canned, and water added to overflowing. The cans are exhausted under vacuum, sealed and processed, all at definite temperature and for definite times.

Claims of Manufacturer.—The selection of the raw materials as to soundness, maturity and section of growth, the preparation for packing, the addition of no salt or sugar, the controlled processing, all lend to standardization of contents and composition of the individual cans for each respective product. Laboratory check on this composition and its declaration on the label give a certain assurance and aid valuable to persons on restricted diet.

VAN CAMP'S PURÉED FRUITS AND VEGETABLES

Manufacturer.—Van Camp Packing Company, Indianapolis.

Description.—Van Camp's Puréed Fruits and Vegetables include purées of peas, spinach, tomatoes, prunes, apricots, carrots with puréed tomatoes and beef broth, and mixed vegetables with beef broth.

Preparation.—Van Camp's Puréed Foods are prepared from selected fruits and vegetables to insure the presence of the natural vitamin and mineral salt values. When raw materials, such as tomatoes, are subject to oxidation after harvesting, only freshly picked stock—fresher than usually available—is used. The puréed form is obtained by a precision method of grinding, instead of by sieving, which gives a highly uniform comminution of the cellular structures. Cooking and other treatment throughout the processes of preparation are carefully devised to prevent the destruction of natural vitamin through oxidation and the loss of mineral salts. The processing insures nutritional values equal or superior to those of similar home prepared vegetables and fruits.

Claims of Manufacturer.—These foods are designed to influence the greater use of certain vegetables of especially good nutritional values, which are considered to be generally slighted in the American dietary; also to provide them in smooth diet form. The fruits and vegetables selected for Van Camp's puréed foods are chosen for their well established vitamin values. They provide an alkaline ash and some indigestible residue. The puréed form is introduced because it supplies the cellulose bulk which tends to stimulate normal mechanical function of the intestine, without the irritation caused by the coarseness of naturally masticated vegetable fiber which cannot be further disintegrated by any digestive enzyme. Preservation of natural flavors and colors is an especial merit of these foods. They are especially suitable for smooth diets for gastrointestinal patients, and for infant feeding.

Disease and the Emotional Life.—There are moments, of course, in cases of serious illness when you will think solely of the disease and its treatment; but when the corner is turned and the immediate crisis is passed, you must give your attention to the patient. Disease in man is never exactly the same as disease in an experimental animal, for in man the disease at once affects and is affected by what we call the emotional life. Thus, the physician who attempts to take care of a patient while he neglects this factor is as unscientific as the investigator who neglects to control all the conditions that may effect his experiment. The good physician knows his patients through and through, and his knowledge is bought dearly. Time, sympathy and understanding must be lavishly dispensed, but the reward is to be found in that personal bond which forms the greatest satisfaction of the practice of medicine.—Peabody, F. W.: Doctor and Patient, New York, Macmillan Company, 1930.

MEDICAL EDUCATION IN THE UNITED STATES

ANNUAL PRESENTATION OF EDUCATIONAL DATA FOR 1930 BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

PART I. PREMEDICAL EDUCATION, FIRST YEAR STUDENTS, 1929-1930

FOREWORD

After the beginning of its work in 1904, the Council on Medical Education soon found that the United States as a nation had not established supervision over general or professional education, nor had it anything to do with the chartering or supervising of educational institutions, these matters having been left to the governments of the several states. But this function was assumed in only a few states.

In most states, therefore, any individual or group could readily secure a charter giving them authority to open an educational institution and to issue diplomas and conduct their affairs as they saw fit, since no boards or commissions had been created for their supervision. In consequence, the most notorious of diploma mills have always been "legally chartered."

In a study of conditions regarding high schools which was made in 1906-1907, the Council found that their development had been retarded in certain parts of the country and efforts were made to stimulate their growth. An article which had previously been prepared by the Committee of Ten of the National Education Association, headed by President Eliot of Harvard University, was found to contain the outlines of a standard high school course with curriculums for the classical, Latin-scientific, modern language and English high schools, each curriculum requiring a total of twenty study-periods a week. This article was published [1] and reprints were distributed to physicians and medical educators, so that information showing what constituted a standard high school was disseminated particularly in the Southern and Western sections of the country.

Again no nation-wide list of high schools had been prepared showing which of the several thousand high schools were worthy of bearing that title. The Council desired to furnish the deans of medical schools with such a list since a four year high school education was then the minimum requirement for admission to class A medical schools. At the request of the Council a list of high schools accredited by state universities or otherwise vouched for was compiled by the United States Bureau of Education.

COLLEGE WORK REQUIRED

At the annual session of the American Medical Association in 1912, the Reference Committee on Medical Education added a recommendation to its report to the House of Delegates that, beginning Jan. 1, 1914, a year of college work be required as an essential for the class A rating. The requirement was later increased to two years of college work, effective Jan. 1, 1918.

Here again, no nation-wide list of colleges deemed worthy of bearing that title could be found. In the preparation of such a list the Council gathered such references as it could find whereby an authoritative list of approved colleges could be published for the guidance of prospective medical students and the deans of the medical schools. The Association of American Universities had just begun publishing a list of approved colleges made up of the institutions designated by the Carnegie Foundation as worthy of having their professors receive pensions. The Southern Association of Colleges and Secondary Schools also was requiring a definite standard for colleges accepted into membership, and the North Central Association of Colleges and Secondary Schools had just established a commission by which certain colleges were listed as approved.

At that time the Association of American Universities was the only nation-wide authority having a list of approved colleges, but its list was too limited (119) to warrant the Council in restricting its recommendation to the colleges approved by that organization. The lists of colleges approved by the district associations of colleges and secondary schools, however, provided a larger and more representative list of colleges from which students could be considered for admission to medical schools.

Basing its action on such authorities, therefore, in 1915, the Council issued its first "Provisional List of Approved Colleges of Arts and Sciences" for such value as it might be. Since 1915, however, this list has undergone a gradual development so that the list revised to June 1, 1930, includes an increased number of colleges which it is believed have been approved by increasingly efficient methods of procedure. Lists of approved colleges have been submitted by all of the five district associations of colleges and secondary schools. The tabulation also shows which colleges are approved by the Association of American Universities. A list of these agencies follows:

Lists of Approved Colleges

Associations	Desig-nation	Number of Colleges	
Association of American Universities.....	A	...	246
North Central Association of Colleges and Secondary Schools	C	243	
Southern Association of Colleges and Secondary Schools	S	132	
Association of Colleges and Secondary Schools of the Middle States and Maryland	M	100	
Northwest Association of Secondary and Higher Schools	W	30	
New England Association of Colleges and Secondary Schools	N	28	
Total, for five districts.....			533
Total, omitting 230 duplicates.....			549

Following the close of the World War, the American Council on Education at Washington was created and has developed as the national center of the five separate district associations of colleges and secondary schools. Since 1920, also, the American Council on Education has published annually in the *Educational Record* a single and complete list of all of the colleges approved by the several district associations.

(Continued on page 497)

1. Published by the American Book Company, Chicago. Reproduced by permission in THE JOURNAL, July 6, 1907, pp. 65-66.

TABLE A.—*Sources of Premedical Education, First Year Students, 1929-1930*

NAME OF COLLEGE	Accredited Agencies Approving	1 Year		2 Years		3 Years		4 Years		Totals		Grand Total
		No Degree	Degree	No Degree	Degree	No Degree	Degree	No Degree	Degree	No Degree	Degree	
ALABAMA		**21**	**5**	**25**	**6**	**16**	**6**	**..**	**27**	**62**	**44**	**106**
Alabama College, Montevallo	S	..	..	..	..	..	..	..	1	..	1	1
Alabama Polytechnic Institute, Auburn	S	4	..	3	..	..	..	..	3	7	3	10
Birmingham Southern College, Birmingham	A-S	4	..	..	..	1	1	..	3	5	4	9
Howard College, Birmingham	A-S	1	..	..	..	1	2	..	3	2	5	7
Spring Hill College, Spring Hill	S	..	..	3	..	..	..	..	..	3	..	3
Talladega College,† Talladega	..	..	..	..	..	..	..	..	5	..	5	5
Union College, Eufaula	..	..	..	..	..	1	..	..	..	1	..	1
University of Alabama, University	A-S	12	5	19	6	13	3	..	11	44	25	69
Woman's College of Alabama, Montgomery	S	..	..	..	..	..	..	..	1	..	1	1
ARIZONA		**2**	**1**	**2**	**1**	**7**	**1**	**..**	**3**	**11**	**6**	**17**
Arizona State Teachers College, Flagstaff	..	1	..	..	..	3	..	..	2	4	2	6
Phoenix Junior College,* Phoenix	C	..	..	1	..	..	..	..	..	1	..	1
University of Arizona, Tucson	A-C	1	1	1	1	4	1	..	1	6	4	10
ARKANSAS		**15**	**1**	**24**	**1**	**9**	**..**	**1**	**7**	**49**	**9**	**58**
Arkansas Agricultural and Mechanical College,* Jonesboro	C	..	..	2	..	..	..	..	..	2	..	2
Arkansas Baptist College,† Little Rock	..	..	..	..	..	..	..	..	1	..	1	1
Arkansas Polytechnic Institute,* Russellville	..	..	..	2	..	..	..	..	..	2	..	2
Arkansas State Normal School, Conway	..	1	..	..	..	..	..	..	..	1	..	1
Galloway Woman's College, Searcey	..	..	..	..	..	..	..	..	1	..	1	1
Hendrix College, Conway	C	6	..	2	..	2	..	..	3	10	3	13
Jonesboro Junior College,* Jonesboro	..	..	..	2	..	..	..	..	..	2	..	2
Little Rock Junior College,* Little Rock	C	1	..	4	..	..	..	..	..	5	..	5
Ouachita College, Arkadelphia	C	1	..	3	..	1	..	..	2	5	2	7
St. John's Seminary, Little Rock	..	1	..	..	..	..	..	..	..	1	..	1
University of Arkansas, Fayetteville	A-C	5	1	9	1	6	..	1	..	21	2	23
CALIFORNIA		**91**	**5**	**96**	**17**	**91**	**10**	**16**	**53**	**294**	**85**	**379**
California College of Pharmacy, San Francisco	..	..	..	..	1	..	1	..	..	..	2	2
Chaffey Junior College,* Ontario	..	..	..	1	..	1	..	..	..	2	..	2
Chico Junior College,* Chico	..	..	..	1	..	..	..	..	..	1	..	1
College of the Pacific, Stockton	A	..	..	1	..	1	..	..	1	2	1	3
Fresno State Teachers College, Fresno	..	4	..	5	..	..	..	..	..	9	..	9
LaVerne College, LaVerne	..	..	..	..	..	..	..	..	1	..	1	1
Loyola College, Los Angeles	..	1	..	2	..	..	..	..	1	3	1	4
Mills College, Oakland	A	..	..	..	..	..	1	..	..	..	1	1
Notre Dame Academy, Salinas	..	..	..	1	..	..	..	..	..	1	..	1
Occidental College, Los Angeles	A	3	..	..	1	1	..	..	1	4	2	6
Pacific Union College, Angwin	..	8	..	25	..	6	..	..	1	39	1	40
Pasadena Junior College,* Pasadena	..	1	..	1	..	..	..	..	..	2	..	2
Pomona College, Claremont	A	3	..	..	..	..	..	..	4	3	4	7
Riverside Junior College,* Riverside	..	2	..	..	..	..	..	..	..	2	..	2
Salinas Junior College,* Salinas	..	1	..	..	..	..	..	..	..	1	..	1
San Bernardino Junior College,* San Bernardino	..	..	..	2	..	..	..	..	..	2	..	2
San Jose State Teachers College, San Jose	..	..	..	4	..	..	..	..	..	4	..	4
Santa Barbara Collegiate School, Santa Barbara	..	..	..	1	..	..	..	..	..	1	..	1
San Mateo Collegiate School, San Mateo	..	4	..	3	..	..	..	..	..	7	..	7
Santa Ana Junior College,* Santa Ana	..	..	..	1	..	..	..	..	..	1	..	1
Santa Clara College, Santa Clara	..	1	..	2	..	..	..	..	..	3	..	3
Santa Rosa Junior College,* Santa Rosa	..	..	..	2	..	..	..	..	..	2	..	2
St. Ignatius College, San Francisco	..	6	2	2	..	2	..	..	..	10	2	12
St. Mary's College, St. Mary's College	W	..	..	1	..	1	..	..	1	2	1	3
Sacramento Junior College,* Sacramento	..	2	..	3	..	..	..	..	..	5	..	5
Stanford University, Palo Alto	A	25	2	6	9	19	5	5	17	55	33	88
State Teachers College, San Diego	W	..	..	4	..	1	..	..	1	5	1	6
University of California, Berkeley-Los Angeles	A	19	1	26	2	48	1	11	15	104	19	123
University of Redlands, Redlands	A-W	1	..	1	..	..	..	..	..	2	..	2
University of Southern California, Los Angeles	A	10	..	1	4	10	2	..	8	21	14	35
Whittier College, Whittier	A	..	..	..	..	1	..	..	2	1	2	3
COLORADO		**23**	**..**	**15**	**1**	**17**	**..**	**3**	**10**	**63**	**11**	**74**
Colorado Agricultural College, Fort Collins	C	1	..	2	..	..	..	..	3	3	3	6
Colorado College, Colorado Springs	A-C	1	..	1	..	4	..	..	1	6	1	7
Colorado School of Mines, Golden	C	..	..	..	..	..	..	..	1	..	1	1
Grand Junction Junior College,* Grand Junction	..	3	..	..	..	..	..	..	..	3	..	3
Regis College,* Denver	C	..	..	..	..	1	..	..	1	1	1	2
University of Colorado, Boulder	A-C	13	..	10	1	10	..	2	1	35	2	37
University of Denver, Denver	C	10	..	2	..	2	..	1	3	15	3	18
CONNECTICUT		**6**	**..**	**6**	**..**	**10**	**7**	**2**	**48**	**24**	**55**	**79**
Connecticut Agricultural College, Storrs	..	3	..	1	..	..	..	..	..	4	..	4
Connecticut College for Women, New London	A	..	..	..	..	..	..	..	2	..	2	2
Trinity College, Hartford	A	..	..	1	..	..	1	..	3	1	4	5
Wesleyan University, Middletown	A	..	..	1	..	1	3	..	5	2	8	10
Yale University, New Haven	A	3	..	3	..	9	3	2	38	17	41	58
DELAWARE		**1**	**..**	**1**	**..**	**..**	**..**	**1**	**7**	**3**	**7**	**10**
University of Delaware, Newark	A-M	1	..	1	..	..	..	1	7	3	7	10
DISTRICT OF COLUMBIA		**65**	**9**	**82**	**7**	**20**	**5**	**8**	**35**	**175**	**56**	**231**
American University, Washington	M	1	..	..	1	..	..	..	2	1	3	4
Catholic University of America, Washington	A-M	4	..	1	1	2	..	..	6	7	7	14
Georgetown University, Washington	A-M	30	..	41	2	..	2	1	10	72	14	86
George Washington University, Washington	M	23	8	25	2	12	1	4	4	64	15	79
Howard University,† Washington	M	4	..	5	1	5	2	3	11	17	14	31
Washington Missionary College, Takoma Park	..	3	1	10	..	1	..	..	2	14	3	17
FLORIDA		**6**	**..**	**16**	**..**	**6**	**1**	**2**	**10**	**30**	**11**	**41**
Florida A. and M. College,† Tallahassee	..	..	..	..	..	1	..	..	..	1	..	1
Florida State College for Women, Tallahassee	A-S	..	..	1	..	..	..	..	..	1	..	1
John B. Stetson University, DeLand	..	2	..	1	..	1	1	..	1	4	2	6
University of Florida, Gainesville	A-S	4	..	14	..	4	..	2	9	24	9	33
GEORGIA		**30**	**2**	**30**	**2**	**23**	**3**	**..**	**29**	**83**	**36**	**119**
Agnes Scott College, Decatur	A-S	..	..	..	..	..	..	..	2	..	2	2
Andrew College,* Cuthbert	S	1	..	..	..	..	..	..	..	1	..	1
Atlanta College of Pharmacy, Atlanta	..	1	..	..	1	..	..	..	..	1	1	2
Atlanta University,† Atlanta	..	..	..	..	..	..	..	..	3	..	3	3

* Junior colleges. † Negro colleges.

TABLE A.—*Sources of Premedical Education, First Year Students, 1929-1930—Continued*

NAME OF COLLEGE	Accredited Agencies Approving	1 Year No Degree	1 Year Degree	2 Years No Degree	2 Years Degree	3 Years No Degree	3 Years Degree	4 Years No Degree	4 Years Degree	Totals No Degree	Totals Degree	Grand Total
GEORGIA—Continued												
Brenau College, Gainesville	..	1	..	..	..	..	..	..	..	1	..	1
Clark University,† Atlanta	..	..	..	..	..	..	..	1	..	1	1	1
Emory University, Atlanta	A-S	10	..	12	1	15	..	..	8	37	9	46
Fairmount College, Fairmount	..	1	..	..	..	..	..	..	..	1	..	1
Georgia School of Technology, Atlanta	S	3	..	1	..	..	..	..	1	4	1	5
Junior College of Augusta,* Augusta	S	2	..	2	..	..	..	..	..	4	..	4
Mercer University, Macon	S	1	..	5	..	5	2	..	2	9	4	13
Morehouse College,† Atlanta	..	1	..	..	..	..	..	..	3	1	3	4
Oglethorpe University, Atlanta	..	..	1	1	..	..	..	..	3	1	4	5
University of Georgia, Athens	A-S	8	1	10	..	3	1	..	6	21	8	29
Wesleyan College, Macon	S	1	..	..	..	..	..	..	..	1	..	1
Young Harris College.* Young Harris	..	..	..	1	..	..	..	..	..	1	..	1
IDAHO		**6**	**..**	**2**	**..**	**1**	**..**	**1**	**2**	**10**	**2**	**12**
College of Idaho, Caldwell	W	1	..	..	..	..	..	..	..	1	..	1
Idaho Technical Institute, Moscow	..	1	..	..	..	..	..	..	..	1	..	1
Northwest Nazarene College,* Nampa	..	1	..	..	..	..	..	..	..	1	..	1
Ricks College,* Rexburg	..	1	..	..	..	..	..	..	..	1	..	1
University of Idaho, Moscow	A-W	2	..	2	..	1	..	1	2	6	2	8
ILLINOIS		**236**	**14**	**204**	**32**	**43**	**11**	**2**	**62**	**450**	**119**	**569**
Armour Institute of Technology, Chicago	C	1	..	..	..	..	..	..	1	1	1	2
Augustana College and Theological Seminary, Rock Island	C	2	..	..	..	..	..	..	..	2	..	2
Aurora College, Aurora	..	1	..	..	..	..	..	..	..	1	..	1
Bradley Polytechnic Institute, Peoria	C	..	..	2	..	1	..	..	..	3	..	3
Broadview College,* LaGrange	..	2	1	2	..	1	..	..	..	5	1	6
Carthage College, Carthage	A-C	..	..	1	..	2	..	..	2	3	2	5
Central Y. M. C. A. College,* Chicago	C	14	..	2	..	1	1	..	..	17	1	18
Crane Junior College,* Chicago	C	54	..	69	8	7	1	..	1	130	10	140
DePaul University, Chicago	C	5	..	2	..	..	..	..	3	7	3	10
Eastern Illinois State Teachers College, Charleston	C	3	..	..	..	..	..	..	..	3	..	3
Elgin Junior College,* Elgin	..	..	..	1	..	..	..	..	..	1	..	1
Elmhurst College,* Elmhurst	C	2	..	..	..	1	..	..	..	3	..	3
Eureka College, Eureka	A-C	..	..	1	..	..	..	..	..	1	..	1
Greenville College, Greenville	..	..	..	1	..	..	..	..	..	1	..	1
Illinois College, Jacksonville	A-C	..	..	3	..	..	..	..	1	3	1	4
Illinois Wesleyan University, Bloomington	A-C	2	..	2	..	1	..	..	2	5	2	7
Illinois Woman's College, Jacksonville	A-C	1	..	..	..	..	..	..	..	1	..	1
James Milliken University, Decatur	C	1	..	3	..	..	..	1	1	5	1	6
Joliet Junior College,* Joliet	C	2	..	2	..	..	..	..	..	4	..	4
Knox College, Galesburg	A-C	..	..	..	..	1	1	..	2	1	3	4
Lake Forest College, Lake Forest	A-C	2	..	..	..	..	..	..	..	2	..	2
LaSalle-Peru-Oglesby Junior College,* LaSalle	C	..	..	..	1	1	..	..	..	1	1	2
Lewis Institute, Chicago	C	25	1	9	..	2	1	..	2	36	4	40
Loyola University, Chicago	C	8	1	23	2	1	..	..	1	32	4	36
McKendree College, Lebanon	..	1	..	..	..	..	..	..	..	1	..	1
Monmouth College, Monmouth	A-C	..	..	..	..	1	1	..	4	1	5	6
Morton Junior College,* Cicero	C	2	..	4	..	..	..	..	..	6	..	6
North Central College, Naperville	A-C	..	..	1	..	1	..	..	4	2	4	6
Northwestern University, Evanston	A-C	29	1	14	6	13	1	..	3	56	11	67
Northwestern University Dental School, Chicago	..	1	1	..	..	..	..	..	2	1	3	4
Northwestern University School of Pharmacy, Chicago	..	..	..	1	..	..	..	..	..	1	..	1
Rockford College, Rockford	A-C	..	..	..	..	..	..	..	1	..	1	1
Rosary College, River Forest	A-C	1	..	..	..	..	..	..	..	1	..	1
Shurtleff College, Alton	C	..	..	..	..	..	..	..	1	..	1	1
Southern Illinois State Teachers College, Carbondale	..	..	..	..	..	1	..	..	1	1	1	2
St. Bede's College, Peru	..	1	..	..	..	..	..	..	..	1	..	1
St. Procopius College, Lisle	..	..	..	1	..	3	..	..	..	4	..	4
St. Viator's College, Bourbonnais	..	1	..	..	..	..	..	..	..	1	..	1
University of Chicago, Chicago	A-C	18	8	10	9	1	3	1	16	30	36	66
University of Illinois, Urbana	A-C	56	1	47	6	9	1	..	12	112	20	132
University of Illinois College of Pharmacy, Chicago	..	..	..	..	..	..	1	..	..	..	1	1
University of Illinois Dental School, Chicago	..	..	..	1	..	..	..	..	..	1	..	1
Western Illinois State Teachers College, Macomb	C	1	..	..	..	..	..	..	..	1	..	1
Wheaton College, Wheaton	C	..	..	2	..	..	..	..	2	2	2	4
INDIANA		**49**	**..**	**73**	**6**	**27**	**9**	**6**	**56**	**155**	**71**	**226**
Ball State Teachers College, Muncie	..	1	..	..	..	..	..	..	..	1	..	1
Butler University, Indianapolis	C	5	..	3	1	3	1	1	4	12	6	18
DePauw University, Greencastle	A-C	..	..	2	..	2	1	..	6	4	7	11
Earlham College, Richmond	A-C	1	..	..	..	1	..	..	4	2	4	6
Evansville College, Evansville	..	1	..	2	..	..	..	..	1	3	1	4
Franklin College, Franklin	A-C	..	..	..	1	..	..	..	..	..	1	1
Goshen College, Goshen	..	..	..	..	..	..	1	..	3	..	4	4
Hanover College, Hanover	C	..	..	1	..	..	..	..	2	1	2	3
Huntington College,* Huntington	..	..	..	..	..	..	..	1	..	1	..	1
Indiana Central College, Indianapolis	..	1	..	..	..	..	..	..	..	1	..	1
Indiana State Teachers College, Terre Haute	..	1	..	..	..	1	..	..	6	2	6	8
Indiana University, Bloomington	A-C	25	..	48	..	9	1	2	7	84	8	92
Indianapolis College of Pharmacy, Indianapolis	..	..	..	..	1	..	..	..	..	..	1	1
Manchester College, North Manchester	..	..	..	2	..	..	..	..	1	2	1	3
Oakland City College, Oakland City	..	..	..	..	1	..	..	..	..	..	1	1
Purdue University, Lafayette	A-C	3	..	3	..	4	3	..	2	10	5	15
St. Mary's College, Notre Dame	C	1	..	..	..	..	..	..	..	1	..	1
Taylor University, Upland	..	..	..	..	1	..	..	..	1	..	2	2
Union Christian College, Merom	..	..	..	1	..	..	..	..	..	1	..	1
Valparaiso University, Valparaiso	C	1	..	2	1	..	..	..	..	3	1	4
Vincennes University,* Vincennes	..	1	..	..	..	..	..	..	..	1	..	1
University of Notre Dame, South Bend	A-C	8	..	9	..	7	2	2	16	26	18	44
Wabash College, Crawfordsville	A-C	..	..	..	..	..	..	..	3	..	3	3
IOWA		**77**	**3**	**74**	**2**	**37**	**7**	**3**	**20**	**191**	**32**	**223**
Buena Vista College, Storm Lake	..	..	..	1	..	..	2	..	..	1	2	3
Central College, Pella	..	..	..	1	..	..	..	..	..	1	..	1
Coe College, Cedar Rapids	A-C	1	..	3	..	1	..	..	1	5	1	6
Columbia College, Dubuque	A-C	2	..	3	..	2	..	..	1	7	1	8
Cornell College, Mount Vernon	A-C	..	..	1	..	1	..	..	..	2	..	2
Des Moines University, Des Moines	..	2	..	2	..	1	..	..	1	5	1	6
Drake University, Des Moines	A-C	3	..	5	..	7	..	..	2	15	2	17
Dubuque University Theological Seminary, Dubuque	..	1	..	..	..	..	..	..	..	1	..	1

* Junior colleges. † Negro colleges.

TABLE A.—*Sources of Premedical Education, First Year Students, 1929-1930—Continued*

NAME OF COLLEGE	Accredited Agencies Approving	1 Year No Degree	1 Year Degree	2 Years No Degree	2 Years Degree	3 Years No Degree	3 Years Degree	4 Years No Degree	4 Years Degree	Totals No Degree	Totals Degree	Grand Total
IOWA—Continued												
Estherville Junior College,* Estherville	..	..	..	1	..	..	..	..	..	1	..	1
Ft. Dodge Junior College,* Ft. Dodge	..	1	..	2	..	..	..	..	..	3	..	3
Graceland College,* Lamoni	C	..	..	2	..	..	..	..	..	2	..	2
Grandview College, Des Moines	..	1	..	..	..	..	..	..	..	1	..	1
Grinnell College, Grinnell	A-C	2	..	3	..	..	1	1	2	6	3	9
Iowa State College of Agriculture and Mechanical Arts, Ames	A-C	1	..	..	..	1	..	..	..	2	..	2
Iowa State Teachers College, Cedar Falls	..	1	..	1	..	2	..	..	..	4	..	4
Iowa Wesleyan College, Mt. Pleasant	C	1	..	..	..	..	..	..	..	1	..	1
John Fletcher College, Oskaloosa	..	..	..	..	..	..	1	..	..	..	1	1
Luther College, Decorah	C	1	..	..	..	..	..	..	3	1	3	4
Morningside College, Sioux City	A-C	1	..	1	..	2	1	1	..	5	1	6
Parsons College, Fairfield	C	..	..	1	..	1	..	..	..	2	..	2
Penn College, Oskaloosa	C	2	..	..	1	1	..	..	2	3	3	6
Simpson College, Indianola	A-C	1	..	..	..	..	..	..	..	1	..	1
St. Ambrose College, Davenport	C	..	..	..	..	1	..	..	1	1	1	2
State University of Iowa, Iowa City	A-C	53	3	44	1	17	2	1	4	115	10	125
University of Dubuque, Dubuque	C	1	..	..	..	..	..	..	1	1	1	2
University of Iowa College of Pharmacy, Iowa City	..	..	..	..	..	..	..	..	1	..	1	1
Waldorf Junior College,* Forest City	..	1	..	1	..	..	..	..	..	2	..	2
Wartburg College, Clinton	..	1	..	1	..	..	..	..	1	2	1	3
Western Union College, LeMars	..	..	..	1	..	..	..	..	..	1	..	1
KANSAS		35	1	27	3	22	6	2	23	86	39	125
Arkansas City Junior College,* Arkansas City	..	..	..	1	..	..	..	..	..	1	..	1
Baker University, Baldwin City	A-C	..	..	3	..	..	1	..	1	3	2	5
Bethany College, Lindsborg	..	..	..	..	..	1	..	..	..	1	..	1
Caney College, Caney	..	..	..	1	..	..	..	..	..	1	..	1
College of Emporia, Emporia	C	1	..	..	..	1	..	..	1	2	1	3
Friends University, Wichita	C	2	..	..	..	..	1	..	1	2	2	4
Garden City Junior College,* Garden City	..	..	..	1	..	..	..	..	..	1	..	1
Independence Junior College,* Independence	..	..	..	1	..	..	..	..	..	1	..	1
Iola Junior College,* Iola	..	1	..	..	..	..	..	..	..	1	..	1
Kansas City Junior College,* Kansas City	..	..	..	1	..	..	..	..	..	1	..	1
Kansas City University, Kansas City	..	1	..	..	..	..	..	..	..	1	..	1
Kansas State Agricultural College, Manhattan	A-C	1	..	..	..	1	..	..	2	2	2	4
Kansas State Teachers College of Emporia	C	..	..	..	..	..	..	..	1	..	1	1
Kansas State Teachers College, Pittsburg	..	2	..	..	1	1	..	..	..	3	1	4
Kansas Wesleyan University, Salina	..	1	..	..	..	..	..	..	1	1	1	2
Municipal University of Wichita	C	..	..	..	..	1	3	..	..	1	3	4
Ottawa University, Ottawa	C	1	..	..	..	1	..	..	..	2	..	2
St. Benedict's College, Atchinson	C	1	..	..	..	..	..	..	..	1	..	1
St. Mary's College,* St. Mary's	C	2	..	5	..	..	..	..	3	7	3	10
Southwestern College, Winfield	C	1	..	1	..	..	..	..	2	2	2	4
Sterling College, Sterling	C	1	..	..	..	..	..	..	..	1	..	1
University of Kansas, Lawrence	A-C	18	1	11	2	16	1	2	14	47	18	65
Washburn College, Topeka	A-C	2	..	2	..	..	..	..	2	4	2	6
Western University, Quindaro	..	..	..	..	..	..	..	..	1	..	1	1
KENTUCKY		32	5	33	4	23	12	1	17	89	38	127
Asbury College, Wilmore	..	1	..	1	..	1	1	..	1	3	2	5
Berea College, Berea	A-S	..	..	..	..	1	..	..	1	1	1	2
Bethel Woman's College,* Hopkinsville	S	1	..	2	1	..	..	..	..	3	1	4
Bowling Green College, Bowling Green	..	2	..	..	..	..	..	..	..	2	..	2
Centre College, Danville	A-S	1	..	..	..	..	2	..	2	1	4	5
Cumberland Junior College,* Williamsburg	..	2	..	..	..	..	..	..	..	2	..	2
Georgetown College, Georgetown	S	..	..	..	..	1	2	..	2	1	4	5
Kentucky State Teachers College, Bowling Green	S	7	1	1	..	..	1	..	1	9	2	11
Kentucky State Teachers College, Richmond	S	..	..	1	2	..	1	..	..	1	3	4
Kentucky Wesleyan University, Winchester	..	..	..	..	..	..	..	..	1	..	1	1
Lindsey Wilson Junior College,* Columbia	..	..	..	1	..	..	..	..	..	1	..	1
Louisville College of Pharmacy, Louisville	..	..	..	1	..	..	..	..	..	1	..	1
Murray State Teachers College, Murray	S	..	..	1	..	..	1	..	1	1	2	3
Ogden College, Bowling Green	..	..	..	1	..	..	..	..	..	1	..	1
Transylvania University, Lexington	S	2	..	..	..	..	3	..	1	2	4	6
University of Kentucky, Lexington	A-S	4	2	5	1	6	1	1	6	16	10	26
University of Louisville, Louisville	S	11	2	18	..	14	..	..	1	43	3	46
Union College, Barbourville	..	1	..	1	..	..	..	..	..	2	..	2
LOUISIANA		29	..	35	1	14	6	..	14	78	21	99
Centenary College, Shreveport	S	2	..	1	..	..	..	..	2	3	2	5
Jefferson College, Convent	..	1	..	..	..	..	..	..	..	1	..	1
Leland University, New Orleans	..	..	..	..	..	..	..	..	1	..	1	1
Louisiana College, Pineville	S	2	..	..	..	..	2	..	3	2	5	7
Louisiana Polytechnic Institute, Ruston	S	1	..	..	..	2	2	..	..	3	2	5
Louisiana State University, Baton Rouge	A-S	..	..	5	..	2	2	..	4	7	6	13
Loyola University, New Orleans	..	1	..	..	..	1	..	..	1	2	1	3
Newcomb Memorial College, New Orleans	A-S	..	..	..	..	..	..	..	1	..	1	1
Southwestern Louisiana Institute, Lafayette	S	1	..	1	..	1	..	..	..	3	..	3
Tulane University of Louisiana, New Orleans	A-S	21	..	28	1	8	..	..	2	57	3	60
MAINE		1	..	1	2	2	2	1	14	5	18	23
Bates College, Lewiston	A-N	..	..	..	..	..	..	..	5	..	5	5
Bowdoin College, Brunswick	A-N	1	..	..	1	..	..	..	5	1	6	7
Colby College, Waterville	A-N	..	..	1	..	1	1	..	3	2	4	6
University of Maine, Orono	A-N	..	..	..	1	1	1	1	1	2	3	5
MARYLAND		12	1	15	5	12	25	1	43	40	74	114
College of Notre Dame, Baltimore	M	1	..	..	..	..	..	..	..	1	..	1
Goucher College, Baltimore	A-M-S	..	..	1	..	..	..	..	4	1	4	5
Hood College, Frederick	M	..	..	..	..	..	..	..	1	..	1	1
Johns Hopkins University, Baltimore	A-M-S	4	1	3	2	..	4	1	16	8	23	31
Loyola College, Baltimore	..	..	..	1	..	..	..	..	3	1	3	4
Morgan College,† Baltimore	M	..	..	1	..	..	1	..	2	1	3	4
Mt. St. Mary's College, Emmitsburg	M	..	..	2	..	..	..	..	2	2	2	4
St. John's College, Annapolis	M	1	..	..	..	..	..	..	7	1	7	8
University of Maryland, College Park	A-M	4	..	4	2	12	5	..	3	20	10	30
University of Maryland School of Pharmacy, Baltimore	..	2	..	..	1	..	15	..	..	2	16	18
Washington College, Chestertown	M	..	..	..	..	..	..	..	2	..	2	2
Western Maryland College, Westminster	M	..	..	3	..	..	..	..	3	3	3	6

* Junior colleges. † Negro colleges.

TABLE A.—*Sources of Premedical Education, First Year Students, 1929-1930—Continued*

NAME OF COLLEGE	Accredited Agencies Approving	1 Year No Degree	1 Year Degree	2 Years No Degree	2 Years Degree	3 Years No Degree	3 Years Degree	4 Years No Degree	4 Years Degree	Totals No Degree	Totals Degree	Grand Total
MASSACHUSETTS		**50**	**1**	**92**	**19**	**38**	**12**	**..**	**143**	**180**	**178**	**358**
Amherst College, Amherst	A–N	1	..	2	2	2	..	..	8	5	10	15
Assumption College, Worcester	..	1	..	..	..	..	1	..	4	1	5	6
Atlantic Union College,* South Lancaster	..	2	..	4	..	..	..	..	..	6	..	6
Boston College, Chestnut Hill	A	1	..	2	2	..	..	..	9	3	11	14
Boston University, Boston	A–N	6	..	5	6	6	..	..	9	17	15	32
Clark University, Worcester	A–N	4	..	..	..	..	1	..	1	4	2	6
Harvard University, Cambridge	A–N	5	..	3	9	2	5	..	52	10	66	76
Holy Cross College, Worcester	A	1	..	4	..	1	3	..	19	6	22	28
International Y. M. C. A. College, Springfield	..	..	1	..	..	..	..	..	..	..	1	1
Massachusetts Agricultural College, Amherst	A	..	..	1	..	..	..	..	..	1	..	1
Massachusetts Institute of Technology, Cambridge	A–N	3	..	1	..	..	..	..	2	4	2	6
Mt. Holyoke College, South Hadley	A–N	..	..	1	..	..	1	..	4	1	5	6
Northeastern University, Boston	..	..	..	..	..	..	..	..	1	..	1	1
Radcliffe College, Cambridge	A–N	1	..	..	..	1	..	..	3	2	3	5
Simmons College, Boston	A–N	2	..	..	..	..	..	..	..	2	..	2
Smith College, Northampton	A–N	..	..	..	..	..	..	..	7	..	7	7
Tufts College, Medford	A–N	20	..	68	..	23	..	..	9	111	9	120
Wellesley College, Wellesley	A–N	1	..	1	..	1	..	..	7	3	7	10
Wheaton College, Norton	A–N	1	..	..	..	..	..	..	2	1	2	3
Williams College, Williamstown	A–N	..	..	..	..	2	1	..	9	2	10	12
Worcester Polytechnic Institute, Worcester	A	1	..	..	..	..	..	..	..	1	..	1
MICHIGAN		**61**	**8**	**64**	**13**	**83**	**15**	**10**	**93**	**223**	**135**	**358**
Albion College, Albion	A–C	..	..	1	2	7	2	..	2	8	6	14
Alma College, Alma	C	..	..	..	..	..	..	..	2	..	2	2
Battle Creek Junior College,* Battle Creek	C	..	..	1	..	1	..	..	..	2	..	2
Bay City Junior College,* Bay City	C	..	..	3	..	1	..	..	..	4	..	4
Calvin College, Grand Rapids	..	..	..	..	..	2	..	1	6	3	6	9
College of the City of Detroit	C	19	2	3	2	18	..	3	17	43	21	64
Emanuel Missionary College,* Berrien Springs	C	5	1	6	1	4	1	..	2	15	5	20
Ferris Institute, Big Rapids	..	1	..	2	..	..	..	..	..	3	..	3
Flint Junior College,* Flint	C	1	..	1	..	..	..	..	..	2	..	2
Grand Rapids Junior College,* Grand Rapids	C	2	..	5	..	..	..	..	..	7	..	7
Highland Park Junior College,* Highland Park	C	1	..	4	..	..	..	..	1	6	..	6
Hillsdale College, Hillsdale	C	..	..	..	..	2	..	..	4	2	4	6
Hope College, Holland	C	1	..	..	..	2	..	..	5	3	5	8
Kalamazoo College, Kalamazoo	A–C	..	..	..	..	..	..	..	1	..	1	1
Michigan Coll. of Agric. and Applied Science, East Lansing	C	4	1	5	..	4	..	..	3	13	4	17
Michigan College of Mining and Technology, Houghton	C	1	..	..	..	..	..	..	..	1	..	1
Michigan State Normal College, Ypsilanti	C	3	..	1	..	..	..	2	1	5	2	7
Muskegon Junior College,* Muskegon	C	..	..	1	..	..	..	..	..	1	..	1
Olivet College, Olivet	..	..	..	2	..	..	..	..	2	2	2	4
Pontiac Junior College,* Pontiac	..	1	..	..	..	..	..	..	..	1	..	1
Port Huron Junior College,* Port Huron	..	..	..	1	..	..	..	..	..	1	..	1
St. Marys' College, Orchard Lake	..	..	..	1	..	1	..	..	..	2	..	2
State Teachers College (Western), Kalamazoo	C	..	..	..	1	1	..	..	2	1	3	4
State Teachers College (Northern), Marquette	C	1	..	..	..	..	..	..	..	1	..	1
State Teachers College (Central), Mt. Pleasant	C	..	..	..	..	..	..	1	..	1	..	1
University of Detroit	..	2	..	7	1	6	2	..	3	15	6	21
University of Michigan, Ann Arbor	A–C	19	4	20	12	39	10	3	42	81	68	149
MINNESOTA		**45**	**..**	**76**	**5**	**75**	**3**	**6**	**21**	**202**	**29**	**231**
Carleton College, Northfield	A–C	..	..	5	..	..	..	..	3	5	3	8
College of St. Thomas, St. Paul	C	1	..	11	..	3	..	..	1	15	1	16
Concordia College, Moorhead	C	..	..	2	..	..	..	..	2	2	2	4
Duluth Junior College,* Duluth	..	..	..	2	..	..	..	..	..	2	..	2
Gustavus Adolphus College, St. Peter	C	1	..	..	1	..	1	..	2	1	4	5
Hamline University, St. Paul	A–C	..	..	1	1	..	..	..	1	1	2	3
Hibbing Junior College,* Hibbing	C	..	..	2	..	1	..	..	..	3	..	3
Hutchinson Theological Seminary, Hutchinson	..	..	..	..	..	1	..	..	..	1	..	1
Itasca Junior College,* Coleraine	..	1	..	..	..	..	..	..	..	1	..	1
Macalester College, St. Paul	A–C	3	..	1	..	..	..	..	2	4	2	6
Northwest College, Fergus Falls	..	1	..	..	..	..	..	..	..	1	..	1
Rochester Junior College,* Rochester	C	2	..	..	..	..	..	..	..	2	..	2
St. John's University, Collegeville	..	2	..	1	..	2	..	..	..	5	..	5
St. Mary's College, Winona	..	..	..	1	..	1	1	..	..	2	1	3
St. Olaf's College, Northfield	C	1	..	2	..	2	1	..	5	5	6	11
State Teachers College, Mankato	..	..	..	1	..	..	..	..	..	1	..	1
University of Minnesota, Minneapolis	A–C	33	..	46	3	65	..	6	5	150	8	158
Virginia Junior College,* Virginia	C	..	..	1	..	..	..	..	..	1	..	1
MISSISSIPPI		**13**	**2**	**28**	**..**	**7**	**3**	**..**	**11**	**48**	**16**	**64**
Alcorn A. and M. College for Negroes,† Alcorn	..	..	..	..	..	..	..	..	1	..	1	1
Blue Mountain College, Blue Mountain	S	1	..	..	..	..	..	..	..	1	..	1
Chickasaw College,* Pontotoc	..	..	..	1	..	..	..	..	..	1	..	1
Gulf Park College,* Gulfport	S	1	..	..	..	..	..	..	..	1	..	1
Millsaps College, Jackson	S	2	..	..	..	2	..	..	1	4	1	5
Mississippi A. and M. College, Starkville	S	3	..	4	..	..	..	..	..	7	..	7
Mississippi College, Clinton	S	..	..	..	..	1	3	..	6	1	9	10
Mississippi State College for Women, Columbus	S	..	..	1	..	..	..	..	..	1	..	1
Pearl River College,* Poplarville	..	..	..	..	..	1	..	..	..	1	..	1
Rust College,† Holly Springs	..	..	..	..	..	..	..	..	2	..	2	2
State Teachers College, Hattiesburg	S	..	1	..	..	..	..	..	..	..	1	1
University of Mississippi, University	A–S	5	1	22	..	3	..	..	1	30	2	32
Whitworth College,* Brookhaven	S	1	..	..	..	..	..	..	..	1	..	1
MISSOURI		**63**	**4**	**63**	**13**	**42**	**8**	**6**	**33**	**174**	**58**	**232**
Central College,* Fayette	A–C	1	..	5	..	3	..	..	2	9	2	11
Christian College,* Columbia	C	..	..	..	1	..	..	..	..	..	1	1
Clinton Theological Seminary, Clinton	..	..	..	1	..	..	..	..	..	1	..	1
Culver-Stockton College, Canton	C	..	..	1	..	..	..	..	..	1	..	1
Concordia Theological Seminary, St. Louis	..	..	..	1	..	..	..	..	..	1	..	1
Drury College, Springfield	A–C	1	..	..	..	..	..	..	1	1	1	2
Junior College of Kansas City*	C	7	..	11	6	2	..	..	..	20	6	26
Kemper Military School,* Boonville	C	1	..	1	..	..	..	..	..	2	..	2
Missouri School of Mines, Rolla	..	..	..	..	..	..	1	..	..	..	1	1
Missouri State Teachers College (Northeast), Kirksville	C	2	1	2	..	2	..	..	..	6	1	7
Missouri State Teachers College (Northwest), Maryville	C	..	..	..	..	..	1	..	..	..	1	1
Missouri State Teachers College (Southwest), Springfield	C	3	..	1	..	..	..	..	1	4	1	5
Missouri State Teachers College (Central), Warrensburg	C	2	..	..	..	..	..	..	2	2	2	4
Missouri Valley College, Marshall	C	..	..	..	1	1	..	..	1	1	2	3
Park College, Parkville	A–C	2	..	2	..	..	3	..	5	4	8	12

* Junior colleges. † Negro colleges.

TABLE A.—*Sources of Premedical Education, First Year Students, 1929-1930—Continued*

NAME OF COLLEGE	Accredited Agencies Approving	1 Year No Degree	1 Year Degree	2 Years No Degree	2 Years Degree	3 Years No Degree	3 Years Degree	4 Years No Degree	4 Years Degree	Totals No Degree	Totals Degree	Grand Total
MISSOURI—Continued												
Rockhurst College, Kansas City	..	..	..	3	..	..	..	..	..	3	..	3
St. Joseph Junior College,* St. Joseph	C	1	..	4	..	..	..	..	..	5	..	5
St. Louis College of Pharmacy, St. Louis	..	1	..	..	..	..	..	..	..	1	..	1
St. Louis University, St. Louis	C	14	1	17	..	6	..	1	2	38	3	41
Southwest Baptist Junior College,* Bolivar	..	..	..	..	1	..	..	..	..	..	1	1
Tarkio College, Tarkio	C	..	..	..	..	..	..	..	1	..	1	1
University of Missouri, Columbia	A-C-S	18	..	6	2	17	1	5	3	46	6	52
Washington University, St. Louis	A-C	8	2	5	1	8	..	..	14	21	17	38
Wentworth Junior College,* Lexington	..	..	..	1	..	..	..	..	..	1	..	1
Wesleyan College, Cameron	..	..	..	..	..	..	1	..	..	..	1	1
Westminster College, Fulton	A-C	1	..	..	..	1	1	..	..	2	1	3
William Jewell College, Liberty	A-C	1	..	..	1	2	..	..	1	3	2	5
William Woods College,* Fulton	C	..	..	2	..	..	..	..	..	2	..	2
MONTANA		**6**	**..**	**12**	**1**	**1**	**1**	**..**	**4**	**19**	**6**	**25**
Intermountain Union College,† Helena	C-W	..	..	..	..	..	1	..	..	..	1	1
Montana State College, Bozeman	C-W	1	..	2	..	..	..	..	2	3	2	5
Montana State School of Mines, Butte	..	3	..	1	..	..	..	..	..	4	..	4
Mount St. Charles College,* Helena	C	1	..	4	1	..	..	..	..	5	1	6
University of Montana, Missoula	A-C	1	..	4	..	1	..	..	2	6	2	8
University of Montana School of Pharmacy, Missoula	..	..	..	1	..	..	..	..	..	1	..	1
NEBRASKA		**42**	**1**	**55**	**4**	**27**	**3**	**5**	**24**	**150**	**32**	**191**
Cotner College, Bethany	..	..	..	1	..	..	..	..	1	1	1	2
Creighton Dental College, Omaha	..	..	..	..	..	1	..	..	..	1	..	1
Creighton School of Pharmacy, Omaha	..	..	..	..	..	..	..	..	2	..	2	2
Creighton University, Omaha	C	6	..	34	..	12	1	..	2	52	3	55
Dana College, Blair	..	..	..	2	..	..	..	..	..	2	..	2
Doane College, Crete	A-C	1	..	..	..	..	..	..	..	1	..	1
Grand Island College, Grand Island	..	..	..	2	..	..	..	..	2	2	2	4
Hastings College, Hastings	C	1	..	..	..	..	..	1	1	2	1	3
Hebron Junior College,* Hebron	..	1	..	..	..	..	..	..	..	1	..	1
Kearney State Teachers College, Kearney	..	1	..	..	..	..	..	..	..	1	..	1
Luther Junior College,* Wahoo	..	1	..	..	..	..	..	..	..	1	..	1
Midland College, Fremont	..	..	..	..	..	..	..	..	1	..	1	1
Nebraska Wesleyan University, Lincoln	C	2	..	5	..	1	..	..	5	8	5	13
State Teachers College, Chadron	..	..	..	2	..	..	..	..	..	2	..	2
State Teachers College, Peru	..	1	..	..	..	..	..	..	..	1	..	1
State Teachers College, Wayne	..	1	..	..	..	..	..	..	1	1	1	2
Union College,* College View	C	2	..	4	1	1	1	..	3	7	5	12
University of Nebraska, Lincoln	A-C	18	1	24	3	11	1	4	6	57	11	68
University of Omaha, Omaha	..	6	..	8	..	..	..	..	..	14	..	14
York College, York	..	1	..	3	..	1	..	..	..	5	..	5
NEVADA		..	..	..	..	..	..	..	2	..	2	2
University of Nevada, Reno	A	..	..	..	..	..	..	..	2	..	2	2
NEW HAMPSHIRE		**5**	**..**	**5**	**2**	**16**	**1**	**2**	**32**	**28**	**35**	**63**
Dartmouth College, Hanover	A-N	3	..	3	..	15	1	2	25	23	26	49
St. Anselm's College, Manchester	..	1	..	..	..	..	..	..	..	1	..	1
University of New Hampshire, Durham	A-N	1	..	2	2	1	..	..	7	4	9	13
NEW JERSEY		**7**	**1**	**9**	**..**	**4**	**2**	**2**	**43**	**22**	**45**	**68**
Bloomfield Theological Seminary, Bloomfield	..	1	..	..	..	..	..	..	..	1	..	1
Georgian Court College, Lakewood	M	1	..	..	..	..	..	..	..	1	..	1
Newark Junior College,* Newark	..	1	..	..	..	..	..	..	..	1	..	1
New Jersey College for Women, New Brunswick	..	..	..	..	..	..	1	..	..	..	1	1
New Jersey College of Pharmacy, Newark	..	1	..	..	..	..	..	..	..	1	..	1
Princeton University, Princeton	A-M	2	..	..	..	2	..	1	28	5	28	33
Rutgers University, New Brunswick	A-M	1	..	5	..	2	1	1	15	9	16	25
Seton Hall College, South Orange	..	..	..	3	..	..	..	..	..	3	..	3
Trenton Junior College,* Trenton	..	..	..	1	..	..	..	..	..	1	..	1
Upsala College, Kenilworth	..	..	1	..	..	..	..	..	..	..	1	1
NEW MEXICO		**3**	**..**	**2**	**..**	**..**	**..**	**..**	**1**	**5**	**1**	**6**
New Mexico Coll. of Agric. and Mechanic Arts, State College	C	1	..	..	..	..	..	..	..	1	..	1
New Mexico Military Institute,* Roswell	..	1	..	2	..	..	..	..	..	3	..	3
State University of New Mexico, Albuquerque	C	1	..	..	..	..	..	..	1	1	1	2
NEW YORK		**143**	**3**	**167**	**17**	**220**	**38**	**14**	**417**	**544**	**475**	**1,019**
Alfred University, Alfred	A-M	3	..	2	..	3	1	..	5	8	6	14
Barnard College, New York	A-M	2	..	..	1	..	..	..	3	2	4	6
Canisius College, Buffalo	M	5	1	15	..	4	..	..	10	24	11	35
Colgate University, Hamilton	A-M	1	..	1	..	3	1	..	15	5	16	21
College of the City of New York	A-M	21	..	7	1	6	6	2	61	36	68	104
College of St. Boniventure, Alleghany	M	2	..	4	..	4	..	..	3	10	3	13
Columbia University, New York	A-M	30	..	41	2	33	5	4	49	108	56	164
Columbia University Nurses School, New York	..	..	..	..	..	..	1	..	..	..	1	1
Concordia College Institute, Bronxville	..	..	..	1	..	..	..	..	..	1	..	1
Cooper Union Junior College,* New York	..	..	..	..	..	..	..	..	1	..	1	1
Cornell University, Ithaca	A-M	5	..	5	2	19	10	1	34	30	46	76
D'Youville College, Buffalo	M	1	..	..	..	..	..	..	..	1	..	1
Elmira College, Elmira	A-M	..	..	1	..	2	..	..	..	3	..	3
Fordham University, New York	A-M	1	1	6	1	8	..	1	68	16	70	86
Hamilton College, Clinton	A-M	1	..	..	..	1	..	1	7	3	7	10
Houghton College, Houghton	..	2	..	..	..	..	..	..	2	2	2	4
Hobart College, Geneva	A-M	2	..	..	..	..	..	..	1	2	1	3
Hunter College, New York	A-M	4	..	..	..	4	..	..	7	8	7	15
Long Island College, Brooklyn	..	1	..	..	..	..	..	..	..	1	..	1
Manhattan College, New York	M	..	..	1	1	1	..	..	13	2	14	16
New York State College of Agriculture, Ithaca	..	1	..	..	..	..	..	..	..	1	..	1
New York State Teachers College, Albany	A	..	..	..	..	..	..	..	3	..	3	3
New York University, New York	A-M	28	..	41	2	60	3	3	71	132	76	208
Niagara University, Niagara Falls	M	1	..	1	..	1	..	..	1	3	1	4
Polytechnic Institute of Brooklyn	A-M	2	..	..	..	..	..	..	..	2	..	2
Rensselaer Polytechnic Institute, Troy	A-M	..	..	..	..	2	..	..	..	2	..	2
Russell Sage College, Troy	M	..	..	..	..	..	1	..	..	..	1	1
St. Bernard's Seminary, Rochester	..	..	..	..	..	1	..	..	..	1	..	1
St. Francis College, Brooklyn	..	4	1	4	1	3	1	..	1	11	4	15
St. John's College, Brooklyn	M	4	..	..	3	7	3	..	16	11	22	33
St. Lawrence University, Canton	A-M	..	..	..	..	2	..	..	3	2	3	5

* Junior colleges. † Negro colleges.

TABLE A.—*Sources of Premedical Education, First Year Students, 1929-1930—Continued*

NAME OF COLLEGE	Accredited Agencies Approving	1 Year		2 Years		3 Years		4 Years		Totals		Grand Total
		No Degree	Degree	No Degree	Degree	No Degree	Degree	No Degree	Degree	No Degree	Degree	
NEW YORK—Continued												
St. Stephens College, Annadale-on-Hudson	A-M	..	..	..	..	..	1	..	..	..	1	1
Syracuse University, Syracuse	A-M	8	..	12	1	20	3	2	18	42	22	64
Union College, Schenectady	A-M	..	..	..	..	12	..	..	12	12	12	24
United States Military Academy, West Point	A	1	..	1	..	..	..	..	..	2	..	2
University of Buffalo	A-M	9	..	24	1	21	..	..	2	54	3	57
University of Buffalo School of Pharmacy, Buffalo	..	..	..	..	1	..	1	..	..	..	2	2
University of Buffalo School of Dentistry, Buffalo	..	..	..	..	..	..	..	..	1	..	1	1
University of Rochester	A-M	3	..	..	..	3	1	..	6	6	7	13
Vassar College, Poughkeepsie	A-M	1	..	..	..	..	..	..	4	1	4	5
NORTH CAROLINA		**17**	**2**	**14**	**4**	**24**	**6**	**1**	**58**	**56**	**70**	**126**
Agricultural and Technical College,† Greensboro	..	..	..	..	..	..	2	..	..	..	2	2
Catawba College, Salisbury	S	..	..	..	..	..	..	..	1	..	1	1
Davidson College, Davidson	A-S	..	..	2	..	..	1	..	12	2	13	15
Duke University, Durham	A-S	4	1	..	1	2	1	..	13	6	16	22
Flora MacDonald College, Red Springs	..	..	..	..	..	..	..	..	1	..	1	1
Guilford College, Guilford College	S	..	..	..	1	..	..	..	..	..	1	1
High Point College, High Point	..	..	..	..	..	..	..	..	2	..	2	2
Johnson C. Smith College,† Charlotte	..	..	..	..	..	..	..	..	1	..	1	1
Lenoir Rhyne College, Hickory	S	..	..	..	..	1	..	..	..	1	..	1
Livingstone College,† Salisbury	..	..	..	..	..	..	..	..	1	..	1	1
Mars Hill College,* Mars Hill	S	..	..	1	1	..	..	..	..	1	1	2
Meredith College, Raleigh	A-S	1	..	..	..	..	..	..	..	1	..	1
North Carolina College for Women, Greensboro	S	1	..	..	..	..	..	..	..	1	..	1
North Carolina State College of A. and E., West Raleigh	S	..	..	1	..	..	..	..	1	1	1	2
Rutherford College,* Rutherford	..	..	..	1	..	..	..	..	..	1	..	1
Shaw University,† Raleigh	..	..	..	..	..	..	..	..	4	..	4	4
University of North Carolina, Chapel Hill	A-S	8	1	6	1	10	1	1	12	25	15	40
Wake Forest College, Wake Forest	S	2	..	2	..	11	1	..	10	15	11	26
Weaver College,* Weaverville	..	..	..	1	..	..	..	..	..	1	..	1
Wingate Junior College,* Wingate	..	1	..	..	..	..	..	..	..	1	..	1
NORTH DAKOTA		**6**	**1**	**10**	**1**	**14**	**..**	**..**	**6**	**30**	**8**	**38**
Dickinson State Normal, Dickinson	..	..	..	3	..	..	..	..	..	3	..	3
Jamestown College, Jamestown	C	..	..	..	..	..	..	..	4	..	4	4
North Dakota Agricultural College, Fargo	C	1	1	2	1	1	..	..	..	4	2	6
State Teachers College, Minot	..	..	..	1	..	1	..	..	..	2	..	2
University of North Dakota, Grand Forks	A-C	5	..	4	..	12	..	..	2	21	2	23
OHIO		**78**	**7**	**87**	**16**	**106**	**30**	**14**	**137**	**285**	**190**	**475**
Antioch College, Yellow Springs	C	1	..	..	..	..	..	1	..	2	..	2
Ashland College, Ashland	..	..	..	..	..	1	..	..	2	1	2	3
Baldwin-Wallace College, Berea	C	2	..	..	1	2	1	..	1	4	3	7
Bluffton College, Bluffton	..	1	..	..	..	..	..	..	..	1	..	1
Capital University, Columbus	C	1	..	1	1	2	..	..	2	4	3	7
Case School of Applied Science, Cleveland	A-C	2	..	..	..	..	..	..	1	2	1	3
Cedarville College, Cedarville	..	..	..	1	..	..	..	..	5	1	5	6
College of Wooster, Wooster	A-C	2	..	..	..	2	..	..	4	4	4	8
Defiance College, Defiance	..	..	..	..	..	..	..	..	1	..	1	1
Denison University, Granville	A-C	4	..	3	..	4	1	..	2	11	3	14
Heidelberg College, Tiffin	A-C	..	..	..	..	..	1	..	4	..	5	5
Hiram College, Hiram	A-C	..	..	1	..	2	..	1	..	4	..	4
John Carroll University, Cleveland	C	3	..	1	..	3	1	..	5	7	6	13
Kent Junior College,* Kent	..	2	..	..	..	..	..	..	..	2	..	2
Kent State Normal, Kent	..	2	..	..	..	..	..	..	..	2	..	2
Kenyon College, Gambier	A-C	..	..	2	1	1	..	..	4	3	5	8
Lake Erie College, Painesville	A-C	1	..	..	..	..	1	..	..	1	1	2
Marietta College, Marietta	A-C	..	..	1	..	4	..	..	2	5	2	7
Miami University, Oxford	A-C	6	..	3	1	7	1	2	2	18	4	22
Mt. Union College, Alliance	A-C	..	..	..	2	1	..	..	5	1	7	8
Muskingum College, New Concord	C	1	..	..	..	..	..	..	4	1	4	5
Oberlin College, Oberlin	A-C	3	1	3	1	2	2	..	10	8	14	22
Ohio Northern University, Ada	..	..	..	..	..	..	..	..	2	..	2	2
Ohio State University, Columbus	A-C	29	4	22	6	29	9	3	26	83	45	128
Ohio University, Athens	A-C	3	..	2	1	1	..	..	2	6	3	9
Ohio Wesleyan University, Delaware	A-C	1	..	1	..	2	2	..	10	4	12	16
Otterbein College, Westerville	A-C	..	..	..	..	..	1	..	..	..	1	1
St. John's Academy, Toledo	..	1	..	..	..	..	1	..	1	1	2	3
St. Xavier College, Cincinnati	C	..	..	..	..	6	..	..	3	6	3	9
University of Akron, Akron	A-C	1	..	2	..	3	..	1	7	7	7	14
University of Cincinnati	A-C	4	..	29	..	13	..	3	3	49	3	52
University of Dayton, Dayton	C	..	..	2	..	2	..	..	1	4	1	5
University of the City of Toledo	C	..	2	2	..	4	4	..	2	6	8	14
Western College for Women, Oxford	A-C	..	..	..	..	1	..	1	..	2	..	2
Western Reserve University, Cleveland	A-C	4	..	7	1	13	3	1	24	25	28	53
Wilberforce University,† Wilberforce	..	..	..	..	1	..	..	1	2	1	3	4
Wittenberg College, Springfield	A-C	4	..	4	..	1	2	..	..	9	2	11
OKLAHOMA		**29**	**1**	**39**	**1**	**17**	**6**	**1**	**15**	**86**	**23**	**109**
East Central State Teachers College, Ada	..	1	..	2	..	..	..	..	1	3	1	4
Lawton Junior College,* Lawton	..	1	..	..	..	..	..	..	..	1	..	1
Northeast State Teachers College, Tahlequah	..	..	..	..	..	1	..	..	2	1	2	3
Northwestern Academy, Carrier	..	1	..	..	..	..	..	..	..	1	..	1
Northwestern State Teachers College, Alva	..	..	..	..	..	..	..	..	2	..	2	2
Oklahoma Agricultural and Mechanical College, Stillwater	C	4	..	2	..	..	..	..	1	6	1	7
Oklahoma Christian Junior College,* Cordell	..	1	..	..	..	..	..	..	..	1	..	1
Oklahoma City University	..	1	..	1	..	3	..	..	..	5	..	5
Oklahoma College for Women, Chickasha	C	..	..	..	..	..	..	..	1	..	1	1
Oklahoma Baptist College, Shawnee	..	1	..	4	..	..	..	..	2	5	2	7
Phillips University, Enid	C	..	..	1	..	1	..	..	..	2	..	2
Southeastern State Teachers College, Durant	..	..	..	..	..	..	..	..	1	..	1	1
Southwestern State Teachers College, Weatherford	..	2	..	3	..	..	..	..	1	5	1	6
University of Oklahoma, Norman	A-C	16	..	26	1	12	5	1	4	55	10	65
University of Oklahoma College of Pharmacy, Norman	..	..	..	..	..	..	1	..	..	..	1	1
University of Tulsa	C	1	1	..	..	..	..	..	..	1	1	2
OREGON		**11**	**..**	**13**	**3**	**21**	**1**	**5**	**17**	**50**	**21**	**71**
Albany College, Albany	..	1	..	..	..	..	..	..	..	1	..	1
Columbia University,* Portland	..	..	..	..	..	1	..	..	..	1	..	1
Linfield College, McMinnville	W	..	..	..	..	..	..	..	2	..	2	2

* Junior colleges. † Negro colleges.

TABLE A.—*Sources of Premedical Education, First Year Students, 1929-1930—Continued*

NAME OF COLLEGE	Accredited Agencies Approving	1 Year No Degree	1 Year Degree	2 Years No Degree	2 Years Degree	3 Years No Degree	3 Years Degree	4 Years No Degree	4 Years Degree	Totals No Degree	Totals Degree	Grand Total
OREGON—Continued												
Northern Pacific College, Newberg	..	..	..	1	..	..	..	..	..	1	..	1
Oregon Agricultural College, Corvallis	A-W	..	..	..	..	..	..	..	1	..	1	1
Oregon State Normal, Monmouth	W	2	..	..	..	3	..	1	3	6	3	9
Reed College, Portland	A-W	2	..	3	1	..	..	..	1	5	2	7
St. Mary's College, Portland	..	..	..	1	..	..	..	..	..	1	..	1
University of Oregon, Eugene	A-W	6	..	8	2	16	1	4	7	34	10	44
Willamette University, Salem	A-W	..	..	..	..	1	..	..	3	1	3	4
PENNSYLVANIA		107	12	201	23	142	42	20	260	470	337	807
Academy of the New Church, Byrne Allyn	..	1	..	..	..	..	..	..	..	1	..	1
Albright College, Myerstown	M	2	..	1	1	..	..	1	6	4	7	11
Alleghany College, Meadville	A-M	4	1	2	..	1	..	..	8	7	9	16
Bryn Mawr College, Bryn Mawr	A-M	..	..	..	..	..	..	..	1	..	1	1
Bucknell University, Lewisburg	A-M	3	..	1	..	4	..	4	12	12	12	24
Carnegie Institute of Technology, Pittsburgh	A-M	1	..	..	..	..	..	..	..	1	..	1
Dickinson College, Carlisle	A-M	1	..	1	1	2	..	..	6	4	7	11
Duquesne University, Pittsburgh	..	3	1	1	..	7	1	..	..	11	2	13
Elizabeth College, Elizabethtown	..	..	..	1	..	..	..	..	2	1	2	3
Franklin and Marshall College, Lancaster	A-M	1	3	2	3	2	1	..	6	5	13	18
Geneva College, Beaver Falls	M	5	..	..	..	1	1	..	7	6	8	14
Gettysburg College, Gettysburg	A-M	1	..	1	..	1	..	..	6	3	6	9
Grove City College, Grove City	..	2	..	..	..	..	..	..	3	2	3	5
Hahnemann College of Science, Philadelphia	..	9	..	71	1	..	..	1	..	81	1	82
Haverford College, Haverford	A-M	..	..	..	..	1	..	..	7	1	7	8
Juniata College, Huntingdon	M	..	..	1	..	1	..	..	1	2	1	3
Lafayette College, Easton	A-M	3	1	2	1	1	1	1	13	7	16	23
LaSalle College, Philadelphia	..	2	..	1	..	2	..	..	..	5	..	5
LaSalle College of Pharmacy, Philadelphia	..	1	..	..	..	..	..	..	..	1	..	1
Lebanon Valley College, Annville	M	1	..	1	1	..	..	..	2	2	3	5
Lehigh University, South Bethlehem	A-M	1	..	3	..	..	..	1	7	5	7	12
Lincoln University,† Lincoln University	M	..	2	..	1	..	1	..	18	..	22	22
Moravian College, Bethlehem	M	1	..	..	1	..	..	..	4	1	5	6
Muhlenberg College, Allentown	A-M	6	..	1	..	..	..	..	..	7	..	7
Pennsylvania State College, State College	A-M	8	..	6	..	25	..	1	13	40	13	53
Philadelphia College of Pharmacy	..	..	..	1	2	..	..	..	..	1	2	3
Philadelphia Normal School, Philadelphia	..	..	..	1	..	..	..	..	..	1	..	1
Pittsburgh College of Pharmacy, Pittsburgh	..	..	..	1	..	..	..	..	..	1	..	1
Polish National Alliance College, Cambridge Springs	..	..	..	1	..	..	..	..	..	1	..	1
St. Francis College, Loretto	..	..	..	..	1	..	2	..	..	..	3	3
St. Joseph's College, Philadelphia	M	1	1	1	..	1	..	..	8	3	9	12
St. Thomas College, Scranton	M	2	..	5	..	2	1	..	11	9	12	21
St. Vincent's College, Latrobe	M	1	1	..	..	1	..	..	1	2	2	4
Schuylkill College, Reading	..	..	..	1	..	..	..	..	..	1	..	1
Shippensburg State Teachers College, Shippensburg	..	1	..	..	..	..	..	..	..	1	..	1
Slippery Rock State Normal, Slippery Rock	..	2	..	..	..	..	..	..	..	2	..	2
Swarthmore College, Swarthmore	A-M	5	..	..	..	..	..	..	6	5	6	11
Susquehanna University, Selinsgrove	..	..	1	..	2	1	..	..	4	1	7	8
Temple University, Philadelphia	M	4	..	4	..	21	2	..	8	29	10	39
Thiel College, Greenville	M	1	..	..	..	..	..	1	1	2	1	3
University of Pennsylvania, Philadelphia	A-M	17	..	16	2	31	20	5	49	69	71	140
University of Pittsburgh, Pittsburgh	A-M	7	1	57	..	18	7	3	23	85	31	116
Ursinus College, Collegeville	M	..	..	2	1	1	2	..	4	3	7	10
Villanova College, Villanova	M	8	..	9	2	16	2	1	11	34	15	49
Washington and Jefferson College, Washington	A-M	2	..	6	1	..	1	1	6	9	8	17
Waynesburg College, Waynesburg	..	..	..	..	1	2	..	..	1	2	2	4
Westminster College, New Wilmington	A-M	..	..	..	1	..	..	..	4	..	5	5
Wilson College, Chambersburg	A-M	..	..	..	..	..	..	..	1	..	1	1
RHODE ISLAND		3	..	11	1	2	..	..	19	16	20	36
Brown University, Providence	A-N	2	..	2	1	..	..	..	10	4	11	15
Providence College, Providence	..	1	..	9	..	2	..	..	7	12	7	19
Rhode Island State College, Kingston	..	..	..	..	..	..	..	..	2	..	2	2
SOUTH CAROLINA		9	2	9	2	12	4	1	23	31	31	62
Benedict Junior College,*† Columbia	..	..	..	..	..	..	..	1	..	1	..	1
Claflin Junior College,*† Orangeburg	..	..	..	..	..	..	..	..	1	..	1	1
Clemson College, Clemson	S	1	..	1	..	6	..	..	1	8	1	9
College of Charleston	S	1	..	1	1	2	..	..	1	4	2	6
Erskine College, Due West	S	1	1	..	..	..	1	..	3	1	5	6
Furman University, Greenville	S	1	1	..	1	2	..	..	3	3	5	8
Limestone College, Gaffney	S	..	..	..	..	..	2	..	..	..	2	2
Newberry College, Newberry	..	..	..	..	..	..	..	..	1	..	1	1
The Citadel, Charleston	S	1	..	1	..	..	..	..	5	2	5	7
University of South Carolina, Columbia	A-S	2	..	2	..	1	..	..	5	5	5	10
Wofford College, Spartanburg	S	2	..	4	..	1	1	..	3	7	4	11
SOUTH DAKOTA		8	1	10	5	3	..	..	4	21	10	31
Canton Lutheran Normal School, Canton	..	1	..	..	..	..	..	..	..	1	..	1
Columbus College, Sioux Falls	..	..	..	3	..	1	..	..	1	4	1	5
Dakota Wesleyan University, Mitchell	C	1	..	1	..	..	..	..	..	2	..	2
Huron College, Huron	C	..	..	1	..	1	..	..	..	2	..	2
Northern Normal and Industrial School, Aberdeen	..	1	..	1	..	..	..	..	..	2	..	2
Sioux Falls College, Sioux Falls	..	1	..	..	..	..	..	..	..	1	..	1
South Dakota Coll. of Agric. and Mechanic Arts, Brookings	C	..	1	..	2	..	..	..	..	..	3	3
South Dakota State School of Mines, Rapid City	C	..	..	..	1	..	..	..	..	..	1	1
Southern Normal School, Springfield	..	..	..	1	..	..	..	..	..	1	..	1
University of South Dakota, Vermillion	A-C	4	..	3	2	1	..	..	2	8	4	12
Yankton College, Yankton	C	..	..	..	..	..	..	..	1	..	1	1
TENNESSEE		45	6	44	6	41	3	4	39	135	54	189
Bethel College, McKenzie	..	2	1	..	..	..	..	..	..	2	1	3
Bryson College, Fayetteville	..	1	..	..	..	1	..	..	..	2	..	2
Carson-Newman College, Jefferson City	S	1	..	..	..	..	1	..	..	1	1	2
David Lypscomb Junior College,* Nashville	..	..	..	1	..	..	..	..	..	1	..	1
East Tennessee State Teachers College, Johnson City	S	..	..	1	..	..	..	1	1	2	1	3
Fisk University,† Nashville	..	1	1	2	..	2	..	1	3	6	4	10
Freed-Hardeman Junior College,* Henderson	..	1	..	..	..	..	..	..	..	1	..	1
George Peabody College for Teachers, Nashville	S	2	..	1	..	..	..	..	..	3	..	3
King College, Bristol	..	..	..	1	..	..	..	..	..	1	..	1
Knoxville College,† Knoxville	..	1	..	..	..	..	..	..	1	1	1	2
Lincoln Memorial University, Harrogate	..	..	..	..	..	..	1	..	2	..	3	3

* Junior colleges. † Negro colleges.

TABLE A.—*Sources of Premedical Education, First Year Students, 1929-1930—Continued*

NAME OF COLLEGE	Accredited Agencies Approving	1 Year		2 Years		3 Years		4 Years		Totals		Grand Total
		No Degree		No Degree		No Degree		No Degree		No Degree		
TENNESSEE—Continued												
Lane College,† Jackson	..	..	..	..	..	..	..	1	..	1	1	
Maryville College, Maryville	S	4	..	..	..	1	..	6	5	6	11	
Middle Tennessee Teachers College, Murfreesboro	S	1	..	..	..	..	..	1	..	2	..	2
Milligan College, Milligan College	..	..	..	1	..	..	..	..	..	1	..	1
Nashville Agricultural Normal Institute,* Madison	..	2	..	2	..	..	..	..	..	4	..	4
Roger Williams College,† Nashville	..	..	..	..	..	1	..	..	2	1	2	3
Southern Junior College,* Ooltewah	..	1	..	..	..	..	..	..	..	1	..	1
Southwestern, Memphis	S	3	1	3	..	1	..	..	7	7	8	15
Tennessee Polytechnic Junior College,* Cookeville	..	1	..	1	..	..	..	..	..	2	..	2
Tusculum College, Greenville	S	..	1	..	..	1	..	..	..	1	1	2
Union College, Jackson	..	2	..	7	..	1	..	..	..	10	..	10
University of Chattanooga	A-S	..	..	5	1	4	..	..	2	9	3	12
University of Tennessee, Knoxville	A-S	12	1	14	1	8	..	..	2	34	4	38
University of Tennesse College of Pharmacy, Knoxville	..	..	..	1	..	..	..	..	..	1	..	1
University of the South, Sewanee	A-S	..	..	1	..	..	1	..	2	1	3	4
Vanderbilt University, Nashville	A-S	9	1	1	4	20	..	1	10	31	15	46
Walden University,† Nashville	..	1	..	..	..	..	..	..	..	1	..	1
Ward-Belmont,* Nashville	S	..	..	1	..	..	..	..	..	1	..	1
West Tennessee State Teachers College, Memphis	S	1	..	1	..	1	..	..	..	3	..	3
TEXAS		**104**	**2**	**97**	**11**	**60**	**11**	**15**	**60**	**276**	**84**	**360**
Abilene Christian College, Abilene	..	..	..	1	..	1	..	..	2	2	2	4
Austin College, Austin	..	4	..	..	..	..	2	..	2	4	4	8
A. and M. College, College Station	S	3	..	4	1	4	..	1	1	12	2	14
Baylor College for Women, Belton	S	1	..	..	..	..	..	..	1	1	1	2
Baylor University, Waco	S	10	..	22	5	2	2	1	6	35	13	48
Burleson Junior College,* Greenville	..	1	..	3	..	..	..	..	..	4	..	4
Brownsville Junior College,* Brownsville	..	..	..	1	..	..	..	..	..	1	..	1
College of Marshall,* Marshall	..	..	..	1	..	..	..	..	..	1	..	1
Dallas University,* Dallas	..	1	..	2	..	..	..	..	..	3	..	3
Daniel Baker College, Brownwood	..	..	..	1	..	..	..	..	..	1	..	1
Decatur Baptist College,* Decatur	..	..	..	3	..	..	..	..	..	3	..	3
Houston Junior College,* Houston	..	..	..	1	..	..	..	..	..	1	..	1
Howard Payne College, Brownwood	..	..	..	..	..	1	..	..	1	1	1	2
Hillsboro Junior College,* Hillsboro	..	1	..	..	..	..	..	..	..	1	..	1
Jacksonville College,* Jacksonville	..	..	..	1	..	..	..	..	..	1	..	1
John Tarleton Agricultural College,* Stephenville	S	1	..	2	..	..	..	..	..	3	..	3
McMurray College, Abilene	..	1	..	..	..	2	..	..	1	3	1	4
Paris Junior College,* Paris	..	1	..	1	..	..	..	..	..	2	..	2
Prairie View College,† Prairie View	..	..	..	..	..	1	..	..	..	1	..	1
Rice Institute, Houston	A-S	3	..	1	..	5	..	1	14	10	14	24
St. Edward's College, Austin	..	1	..	1	..	..	..	..	2	2	2	4
St. Mary's College, San Antonio	..	2	..	..	..	..	..	..	1	2	1	3
Sam Houston College,† Austin	..	3	1	..	..	..	1	..	3	3	5	8
Schreiner Institute,* Kerrville	..	1	..	1	..	..	..	..	..	2	..	2
Simmons University, Abilene	S	1	..	3	..	1	..	..	..	5	..	5
Southern Methodist University, Dallas	A-S	8	..	6	2	8	..	3	2	25	4	29
South Park College,* Beaumont	..	3	..	1	..	..	..	..	..	4	..	4
Southwestern University, Georgetown	S	1	..	1	..	2	1	..	2	4	3	7
Southwest State Teachers College, San Marcos	S	1	..	1	..	1	..	..	2	3	2	5
Stephen F. Austin State Teachers College, Nacogdoches	S	3	..	..	..	..	..	..	..	3	..	3
Texas Christian University, Fort Worth	S	7	..	..	1	4	1	1	1	12	3	15
Temple Junior College,* Temple	..	3	..	..	..	..	..	..	..	3	..	3
Texas Agricultural Junior College,* Arlington	..	1	..	1	..	..	..	..	..	2	..	2
Texas School of Mines, El Paso	..	..	..	2	..	..	..	..	..	2	..	2
Texas Technological College, Lubbock	S	3	..	3	..	3	..	..	4	9	4	13
Thorpe Spring Christian College,* Terrell	..	1	..	..	..	..	..	..	..	1	..	1
Trinity University, Waxahachie	S	..	..	1	..	..	..	..	1	1	1	2
University of Texas, Austin	A-S	19	1	25	2	25	4	8	10	87	17	104
University of Texas School of Pharmacy, Galveston	..	..	..	1	..	..	..	..	..	1	..	1
Victoria Junior College,* Victoria	..	1	..	1	..	..	..	..	..	2	..	2
Wayland Baptist Junior College,* Plain View	..	1	..	2	..	..	..	..	..	3	..	3
Wesley Junior College,* Greenville	..	1	..	..	..	..	..	..	..	1	..	1
West Texas State Teachers College, Canyon	S	2	..	..	..	..	..	..	..	2	..	2
Wichita Falls Junior College,* Wichita Falls	..	3	..	3	..	..	..	..	..	6	..	6
Wiley College,† Marshall	..	1	..	..	..	..	..	..	4	1	4	5
UTAH		**9**	**..**	**5**	**2**	**14**	**3**	**5**	**7**	**33**	**12**	**45**
Agricultural College of Utah, Logan	A-W	1	..	..	1	1	1	..	3	2	5	7
Brigham Young University,* Provo	A-W	2	..	..	..	2	..	..	1	4	1	5
Dixie Junior College,* St. George	..	..	..	1	..	..	..	..	..	1	..	1
Latter Day Saints Junior College,* Salt Lake City	..	1	..	..	..	..	..	..	..	1	..	1
Snow College,* Ephraim	..	1	..	..	..	..	..	..	..	1	..	1
University of Utah, Salt Lake City	A	4	..	4	1	11	2	5	3	24	6	30
VERMONT		**4**	**1**	**16**	**25**	**1**	**5**	**6**	**3**	**27**	**34**	**61**
Middlebury College, Middlebury	A-N	..	1	..	..	..	..	..	2	..	3	3
Norwich University, Northfield	..	1	..	..	..	..	..	..	1	1	1	2
St. Michael's College, Winooski Park	..	2	..	..	..	..	..	..	..	2	..	2
University of Vermont, Burlington	A-N	1	..	16	25	1	5	6	..	24	30	54
VIRGINIA		**23**	**..**	**53**	**5**	**54**	**13**	**12**	**54**	**142**	**72**	**214**
Bridgewater College, Bridgewater	S	..	..	..	..	..	..	..	2	..	2	2
College of William and Mary, Williamsburg	A-S	4	..	12	2	7	..	..	5	23	7	30
Emory and Henry College, Emory	S	2	..	1	..	1	2	..	5	4	7	11
Hampden and Sidney College, Hampden-Sidney	S	..	..	..	1	..	..	..	..	..	1	1
Hampton Normal and Industrial Institute,† Hampton	..	1	..	..	..	..	..	..	..	1	..	1
Lynchburg College, Lynchburg	S	..	..	1	..	2	1	..	..	3	1	4
Randolph-Macon College, Ashland	A-S	2	..	2	..	4	..	..	6	8	6	14
Randolph-Macon Woman's College, Lynchburg	A-S	..	..	1	..	..	..	..	..	1	..	1
Roanoke College, Roanoke	S	1	..	2	..	1	2	..	2	4	4	8
University of Richmond	A-S	3	..	6	..	1	..	2	5	12	5	17
University of Virginia, Charlottesville	A-S	7	..	14	..	37	2	8	8	66	10	76
Virginia Intermont College,* Bristol	S	..	..	..	..	..	..	..	1	..	1	1
Virginia Military Institute, Lexington	S	1	..	..	..	..	1	..	10	1	11	12
Virginia Polytechnic Institute, Blacksburg	S	1	..	8	..	..	..	2	1	11	1	12
Virginia Union University,† Richmond	..	..	..	..	1	..	..	..	4	..	5	5
Virginia Theological Seminary and College,† Lynchburg	..	..	..	..	..	1	..	..	..	1	..	1
Washington and Lee University, Lexington	A-S	1	..	6	..	..	4	..	5	7	9	16
Medical College of Virginia School of Pharmacy, Richmond	..	..	..	..	1	..	1	..	..	..	2	2

* Junior colleges. † Negro colleges.

TABLE A.—*Sources of Premedical Education, First Year Students, 1929-1930—Continued*

NAME OF COLLEGE	Accredited Agencies Approving	1 Year No Degree	1 Year Degree	2 Years No Degree	2 Years Degree	3 Years No Degree	3 Years Degree	4 Years No Degree	4 Years Degree	Totals No Degree	Totals Degree	Grand Total
WASHINGTON		**19**	**3**	**23**	**5**	**9**	**6**	**4**	**20**	**55**	**34**	**89**
College of Puget Sound, Tacoma	W	..	..	..	..	..	..	1	..	1	..	1
Gonzaga University, Spokane	W	..	..	3	2	1	..	1	..	5	2	7
St. Martin's College, Lacey	..	1	..	..	..	..	..	..	..	1	..	1
Seattle Pacific College,* Seattle	..	..	..	1	..	..	..	..	..	1	..	1
State College of Washington, Pullman	A-W	1	..	6	..	1	2	..	3	8	5	13
State Normal School, Bellingham	W	3	..	..	..	..	..	..	..	3	..	3
State Normal School, Seattle	A-W	1	..	..	..	..	..	..	..	1	..	1
University of Washington, Cheney	A-W	5	1	5	3	6	3	2	16	18	23	41
Walla Walla College, Walla Walla	..	7	1	8	..	1	1	..	..	16	2	18
Whitman College, Walla Walla	A-W	1	1	..	..	..	..	..	1	1	2	3
WEST VIRGINIA		**23**	**3**	**31**	**4**	**5**	**3**	**1**	**17**	**60**	**27**	**87**
Bethany College, Bethany	A-S-C	..	..	..	..	..	..	..	1	..	1	1
Bluefield Colored Institute,*† Bluefield	..	1	..	..	..	1	..	..	..	2	..	2
Broaddus College,* Phillipi	..	..	..	..	..	..	..	..	2	..	2	2
Concord State Normal School, Athens	..	1	..	3	..	..	..	..	..	4	..	4
Davis and Elkins College, Elkins	..	1	..	..	..	..	..	..	..	1	..	1
Fairmont State Normal, Fairmont	..	2	..	..	..	..	..	..	2	2	2	4
Glenville State Normal, Glenville	..	..	..	1	..	..	..	..	..	1	..	1
Marshall College, Huntington	S-C	1	..	3	..	1	1	..	1	5	2	7
New River State School,* Montgomery	..	2	..	..	..	..	..	..	..	2	..	2
Point Pleasant Normal School, Point Pleasant	..	1	..	..	..	..	..	..	..	1	..	1
Potomoc State School,* Keyser	C	1	..	..	..	..	..	..	..	1	..	1
Salem College, Salem	..	..	..	1	..	..	..	..	..	1	..	1
Shepherd College State Normal School, Shepherdstown	..	..	..	1	..	..	..	..	..	1	..	1
West Liberty State Normal School, West Liberty	..	1	..	..	..	..	..	..	..	1	..	1
West Virginia State College,† Institute	C	..	..	..	..	..	1	..	..	..	1	1
West Virginia University, Morgantown	S	12	3	20	3	3	1	1	8	36	15	51
West Virginia Wesleyan University, Buckhannon	C	..	..	2	1	..	..	..	3	2	4	6
WISCONSIN		**43**	**1**	**76**	**5**	**65**	**5**	**10**	**23**	**197**	**34**	**231**
Beloit College, Beloit	A-C	..	..	1	..	..	3	..	3	1	6	7
Campion College, Prairie du Chien	..	1	..	..	..	..	..	..	..	1	..	1
Carroll College, Waukesha	C	..	..	..	..	..	..	..	3	..	3	3
Central State Teachers College, Stevens Point	..	2	..	2	..	..	..	..	..	4	..	4
Eau Claire State Teachers College, Eau Claire	..	1	..	..	..	..	..	..	..	1	..	1
Lawrence College, Appleton	A-C	1	..	7	..	..	..	..	3	8	3	11
Marquette University, Milwaukee	C	7	..	19	1	9	..	2	2	37	3	40
Milwaukee-Downer College, Milwaukee	A-C	1	..	..	..	..	..	..	..	1	..	1
Milwaukee State Teachers College, Milwaukee	C	9	..	4	..	..	..	..	..	13	..	13
Milton College, Milton	..	1	..	..	..	..	..	..	..	1	..	1
Ripon College, Ripon	A-C	1	..	..	..	1	1	..	1	2	2	4
St. Norbert's College, De Pere	..	..	..	..	1	..	..	..	..	..	1	1
State Teachers College, River Falls	..	..	..	..	..	1	..	..	..	1	..	1
State Teachers College, Oshkosh	C	..	..	3	..	..	..	..	..	3	..	3
State Teachers College, La Crosse	..	2	..	1	..	..	..	..	..	3	..	3
State Teachers College, Superior	..	1	..	3	..	..	..	..	1	4	1	5
University of Wisconsin, Madison	A-C	19	1	36	3	54	1	8	10	117	15	132
WYOMING		**2**	..	..	..	**1**	..	..	**1**	**3**	**1**	4
University of Wyoming, Laramie	A-C	2	..	..	..	1	..	..	1	3	1	4
U. S. POSSESSIONS		**4**	**1**	**10**	..	**9**	..	..	**3**	**23**	**4**	27
University of Hawaii, Honolulu	A	2	1	7	..	5	..	..	3	14	4	18
University of the Philippines, Manila	..	1	..	..	..	..	..	..	..	1	..	1
University of Porto Rico, San Juan	..	1	..	3	..	4	..	..	..	8	..	8
CANADA		**4**	..	**1**	..	**3**	..	..	**3**	**8**	**3**	11
Acadia University, Wolfville, Nova Scotia	..	..	..	..	..	1	..	..	1	1	1	2
Loyola University, Montreal, Quebec	..	..	..	1	..	..	..	..	..	1	..	1
Manitoba Agricultural College, Winnipeg, Manitoba	..	..	..	..	..	..	..	..	1	..	1	1
McGill University, Montreal, Quebec	A	2	..	..	..	2	..	..	..	4	..	4
Stratford Collegiate University, Stratford, Ontario	..	1	..	..	..	..	..	..	..	1	..	1
University of Saskatchewan, Saskatoon, Saskatchewan	..	..	..	..	..	..	..	..	1	..	1	1
Victoria College, Toronto, Ontario	A	1	..	..	..	..	..	..	..	1	..	1
FOREIGN		**21**	**1**	**10**	..	**4**	**1**	..	**3**	**35**	**5**	40
American Institute, LaPaz, Bolivia, S. A.	..	..	..	1	..	..	..	..	..	1	..	1
University of LaPaz, LaPaz, Bolivia, S. A.	..	..	..	..	..	..	..	..	1	..	1	1
Mackenzie College, Sao Paulo, Brazil, S. A.	..	1	..	..	..	..	..	..	..	1	..	1
Fukien Christian University, Soochow, China	..	2	..	..	..	..	..	..	..	2	..	2
North China American School, Peiping, China	..	..	..	1	..	..	..	..	..	1	..	1
St. Johns University, Shanghai, China	..	1	..	..	..	..	..	..	..	1	..	1
Shanghai Baptist College, Shanghai, China	..	..	..	1	..	..	..	..	..	1	..	1
Chosen Christian College, Seoul, Chosen	..	..	..	..	..	1	..	..	..	1	..	1
East London College, London, England	..	..	1	..	..	..	..	..	..	..	1	1
Howard Gardens, Cardiff, England	..	1	..	..	..	..	..	..	..	1	..	1
Middlesex Hospital School, London, England	..	1	..	..	..	..	..	..	..	1	..	1
Royal Dental School, London, England	..	..	..	..	..	1	..	..	..	1	..	1
Stanborough College, Watford, England	..	..	..	1	..	1	..	..	..	2	..	2
Friedensau Seminar, Friedensau, Germany	..	1	..	..	..	..	..	..	..	1	..	1
Hamburg College-Institute, Hamburg, Germany	..	1	..	..	..	..	..	..	..	1	..	1
Neanderthal Seminary, Neanderthal, Germany	..	1	..	1	..	..	..	..	..	2	..	2
Oberrealschule, Bremen, Germany	..	..	..	1	..	..	..	..	..	1	..	1
Oranienburg Normal School, Oranienberg, Germany	..	1	..	..	..	..	..	..	..	1	..	1
University of Berlin, Berlin, Germany	..	4	..	..	..	..	..	..	..	4	..	4
Royal Hungarian Univ. of Budapest, Budapest, Hungary	..	..	..	..	..	..	1	..	..	..	1	1
Isabella Thoburn College, Lucknow, India	..	..	..	1	..	..	..	..	..	1	..	1
New Poona College, Poona, India	..	1	..	..	..	..	..	..	..	1	..	1
P. Smith College, Naini-Tal, India	..	1	..	..	..	..	..	..	..	1	..	1
Wellington College, Bombay, India	..	1	..	..	..	..	..	..	..	1	..	1
University of Rome, Rome, Italy	..	1	..	..	..	..	..	..	..	1	..	1
University of Guadalajara, Guadalajara, Mexico	..	..	..	1	..	..	..	..	..	1	..	1
Vilna University, Vilna, Poland	..	1	..	..	..	..	..	..	..	1	..	1
Enskilda Gymnasium, Stockholm, Sweden	..	..	..	1	..	..	..	..	..	1	..	1
Nyhyltan School, Nyhyltan, Sweden	..	1	..	..	..	..	..	..	..	1	..	1
American University, Beyrouth, Syria	..	..	..	..	..	1	..	..	..	1	..	1
University of St. Joseph, Beyrouth, Syria	..	1	..	..	..	..	..	..	..	1	..	1
Roberts College, Istanboul, Turkey	..	..	..	..	..	..	..	..	2	..	2	2
University of Leningrad, Leningrad, U. S. S. R.	..	..	..	1	..	..	..	..	..	1	..	1

* Junior colleges. † Negro colleges.

(Continued from page 487)

Since 1924, a "College Blue Book" has been published under the direction of Hubert William Hurt, Ph.D., of Columbia University. This contains much valuable information about colleges, and gives by initials a list of the standardizing agencies (if any) by which each of 582 colleges has been approved.

Lists of institutions commonly recognized as colleges of arts and sciences have been published in certain almanacs and year books, such as that published by the Chicago *Daily News*. The list published in the yearbook just named includes the names of 523 institutions. The present edition of the Council's "Approved Colleges of Arts and Sciences and Junior Colleges" includes the names of 549 institutions each of which is approved by one or more of the six different standardizing agencies which the Council deems worthy of being considered as reliable. Beginning with the edition of April 20, 1920, the Council published the following statement in the introduction to its approved list:

After January 1, 1923, no college of liberal arts or sciences or junior college located in the district of the North Central Association of Colleges and Secondary Schools, which is not approved by that association, will be considered as acceptable by the Council on Medical Education.

Later, as other of the district associations of colleges and secondary schools provided lists of approved colleges in their districts the foregoing ruling in regard to the "North Central Association of Colleges and Secondary Schools" was changed and in the present edition (revised to June 1, 1930) reads:

No college of arts or sciences which is located in a district in which the Association of Colleges and Secondary Schools has established a commission for the approval of the colleges located in that district will be considered as acceptable to the Council on Medical Education and Hospitals unless it has been approved by the local district association of Colleges and Secondary Schools (see page 2) or by the Association of American Universities.

TABLE B.—*Qualifications of Students Entering Medical Schools as Freshmen in Session of 1929-30*

	(a) From Colleges Approved by Accredited* Agencies	(b) Transferred to Approved Colleges After One or More Years Elsewhere	(c) From Other Colleges After One or More Years in an Approved College Transferred to Other Colleges	(d)	(e) Total Registration
University of Alabama School of Medicine	46	3	3	..	52
University of Arkansas School of Medicine	49	3	3	1	56
College of Medical Evangelists	32	13	76†	8	129
Stanford University School of Medicine	40	10	..	1	51
University of California Medical School	53	6	..	1	60
Univ. of Southern California School of Med.	46	8	1	..	55
University of Colorado School of Medicine	56	6	1	..	63
Yale University School of Medicine	41	..	1	..	42
Georgetown University School of Medicine	130	5	15	2	152
George Washington University Medical School	79	2	2	1	84
Howard University School of Medicine	45	4	9‡	..	58
Emory University School of Medicine	55	2	..	..	57
University of Georgia Medical Department	34	2	3	..	39
Loyola University School of Medicine	134	4	17	4	159
Northwestern University Medical School	113	9	3	..	125
University of Chicago, Graduate School of Medicine of the Ogden Graduate School of Science and Rush Medical College	102	9	4	1	116
University of Illinois College of Medicine	170	3	..	..	173
Indiana University School of Medicine	100	11	8	..	119
State University of Iowa College of Medicine	130	15	7	..	152
University of Kansas School of Medicine	55	10	4	2	71
University of Louisville School of Medicine	71	5	6	1	83
Tulane University of Louisiana Sch. of Med.	129	2	1	..	132
Johns Hopkins University School of Medicine	67	2	..	..	69
University of Maryland School of Medicine and College of Physicians and Surgeons	120	4	5	2	131
Boston University School of Medicine	58	3	9	..	70
Harvard University Medical School	121	1	3	..	125
Tufts College Medical School	131	3	..	..	134
University of Michigan Medical School	142	7	11	..	160
Detroit College of Medicine and Surgery	72	4	11	5	92
University of Minnesota Medical School	157	9	6	..	172
University of Mississippi School of Medicine	35	3	..	..	38
University of Missouri School of Medicine	37	2	1	..	40
St. Louis University School of Medicine	136	8	15	9	168
Washington University School of Medicine	75	4	3	..	82
Creighton University School of Medicine	76	10	3	7	96
University of Nebraska College of Medicine	15	7	23	5	100
Dartmouth Medical School	23	..	..	..	23
Albany Medical College	37	1	1	..	39
University of Buffalo School of Medicine	79	1	..	..	80
Columbia University College of Phys. & Surg.	113	1	1	..	115
Cornell University Medical College	60	1	..	..	61
Long Island College Hospital	118	1	1	..	120
New York Homeo. Med. Coll. & Flower Hosp.	92	3	3	4	102
University and Bellevue Hospital Med. College	131	1	1	1	134
University of Rochester School of Medicine	38	1	1	2	42
Syracuse University College of Medicine	52	..	..	..	52
University of North Carolina School of Med.	40	1	..	..	41
Wake Forest School of Medicine	26	..	..	..	26
University of North Dakota School of Med.	28	2	..	..	30
University of Cincinnati College of Medicine	89	..	2	..	91
Western Reserve University School of Med.	64	2	2	..	68
Ohio State University College of Medicine	98	2	1	..	101
University of Oklahoma School of Medicine	48	11	13	3	75
University of Oregon Medical School	60	3	..	1	64
Hahnemann Med. College and Hosp. of Phila.	76	6	75§	13	170
Jefferson Medical College of Philadelphia	141	6	6	2	155
Temple University School of Medicine	106	3	1	..	110
University of Pennsylvania School of Medicine	108	2	..	..	110
Woman's Medical College of Pennsylvania	38	4	2	..	44
University of Pittsburgh School of Medicine	63	1	3	..	67
Medical College of the State of So. Carolina	41	..	1	..	42
University of South Dakota School of Med.	13	5	2	1	21
University of Tennessee College of Medicine	96	16	8	2	122
Meharry Medical College	23	4	35‡	4	66
Vanderbilt University School of Medicine	43	4	3	..	50
Baylor University College of Medicine	85	24	11	3	123
University of Texas School of Medicine	82	17	8	..	107
University of Utah School of Medicine	27	4	..	..	31
University of Vermont College of Medicine	51	2	..	..	53
Medical College of Virginia	70	7	5	2	84
University of Virginia Dept. of Medicine	73	..	..	..	73
West Virginia University School of Medicine	53	7	7	..	67
University of Wisconsin Medical School	111	3	4	..	118
Marquette University School of Medicine	68	5	2	..	75
Totals	5,566	350	453	88	6,457
Per cent	86.2	5.4	7.0	1.4	100.0

TABLE B.—*Qualifications of Students Entering Medical Schools as Freshmen in Session of 1929-1930—Continued*

* The agencies issuing lists of approved colleges of arts and sciences and junior colleges, which have been considered reliable by the Council on Medical Education and Hospitals and which are referred to in these statistics as "accredited," consist of the five district Associations of Colleges and Secondary Schools and the Association of American Universities.

† Heretofore the College of Medical Evangelists has been accepting students coming from colleges approved by the Association of Seventh Day Adventist Colleges and Secondary Schools, some of which have not received the approval of the district Associations of Colleges and Secondary Schools.

‡ Until in 1929 no satisfactory list of negro colleges had been prepared by a standardizing agency which could be considered as acceptable by the Council on Medical Education and Hospitals, and the negro medical schools had no such list to guide them.

§ The Hahnemann Medical College has admitted students coming from the Hahnemann School of Science, which thus far has not obtained the approval of the district Association of Colleges and Secondary Schools.

STATISTICS ON PREMEDICAL EDUCATION

The accompanying statistics relate to the character of the premedical education of the students who entered on the study of medicine at the beginning of the present session—in the fall of 1929. These statistics are based on extensive reports, including the students individual histories, prepared by students and sent to us by the courtesy of the deans of the medical schools. Through the receipt of such reports since 1910, the Council has been enabled to establish a Medical Students' Register at the headquarters of the Association. This reg-

ister has proved to be the source of much valuable information in regard to the preliminary histories and preparation of medical students.

This year is particularly favorable for the presentation of the statistics, as the seventy-six recognized medical schools are not only requiring two or more years of college work for admission but seventy-five of them are rated in class A. It is well, therefore, to take note regarding the character and standing of the educational institutions wherein the students entering medical schools last fall had obtained their premedical education.

Table A gives a list, arranged alphabetically by states, of the liberal arts colleges, junior colleges and other institutions in which students obtained their premedical work. This table shows, in the first column, whether or not the institution has been approved by one of the standardizing agencies which, after a careful consideration, have been deemed reliable by the Council on Medical Education and Hospitals. In the succeeding columns the facts are indicated as to the number of students who obtained respectively one, two, three or four years of work in each of the colleges named and whether or not, following that work, each student was granted a degree. The totals, also, are given of students who obtained work in the institution named, including those who did not and those who did obtain degrees. The last column gives the grand total of all students who obtained all, or a part, of their premedical work in each institution named.

The table gives the totals for each state of the United States, and at the end of the list are given totals of students coming from the United States possessions, from Canada and from other foreign countries.

Altogether, 8,402 students were reported as having attended 804 different colleges, an average of 10.4 students from each institution. The statistics show that the qualifications of 6,457 students were obtained in these 804 colleges, which makes it evident that some students obtained credits from more than one college, and that each student, on the average, attended 1.23 colleges. The numbers of students who attended one, two, three and four years at the colleges named were 1,864, 2,413, 1,846 and 2,279 respectively, or altogether 8,402 students, of whom 2,821 also obtained degrees. Indeed, 2,821, or 43.7 per cent of all students entering medical schools in the fall of 1929, held baccalaureate degrees, as compared with 70 per cent of the 1930 graduates.

Of the 804 colleges, junior colleges or other institutions in which these students obtained their premedical training, 452 have been approved by standardized agencies accredited by the Council and 352 have not been so approved. Of the latter, however, there are eleven who came from colleges in Canada, twenty-seven from colleges located in the United States dependencies, and forty are from colleges located in countries abroad. Of these 33 colleges, an examination of the list reveals many which have well established reputations. There are others, however, the standing of which, educationally, is not so well known.

In the list also there are 125 junior colleges, only 41 of which have been approved by any of the accredited standardizing agencies. The various district associations of colleges and secondary schools, therefore, are urged to extend their investigations so as to cover junior colleges so that those which are found worthy may also be designated as "approved."

There are also thirty-one Negro colleges named in the list for which no satisfactory means of standardization had been found prior to 1929, when a list was prepared by a special committee acting under the auspices of the Council on Medical Education and Hospitals, pending the time when this work might be undertaken by the district associations of colleges and secondary schools. Last year a list of seventy-eight Negro colleges was published, including twenty-five in group I (approved), fifteen in group II, thirty in group III and eight unclassified because of inadequate information.

The students from Negro colleges who entered medical schools in the fall of 1929, therefore, obtained their premedical education before the Council's classification had been published. This explains the conditions with which Meharry Medical College is contending.

Three students are reported to have obtained their premedical training in schools of medicine, dentistry or pharmacy, and heretofore the educational value of that training would hardly be compared favorably with that obtained in approved colleges of arts and sciences. The Council's ruling in regard to premedical work obtained in institutions the character of whose training is in doubt is as follows:

> The premedical course in both quantity and quality should be such as could be accepted as the equivalent of the first two years of the course in reputable and approved colleges of arts and sciences leading to a baccalaureate degree.

STUDENTS ADMITTED TO MEDICAL SCHOOLS

In table B, the first column (*a*) gives the number of students admitted to each medical school whose premedical training was obtained entirely in liberal arts colleges approved by either the Association of American Universities or one of the five district associations of colleges and secondary schools. These are the agencies which the Council on Medical Education and Hospitals has believed to be sufficiently free from local, political or sectarian influences to be deemed worthy of the Council's endorsement.

The second column (*b*) contains the number of students who began their premedical studies in colleges *not listed* as approved but who later transferred to, and finished their work in, colleges which *were approved* by reliable agencies. All the work of these students, therefore, has supposedly been checked or scrutinized by the officials of colleges whose methods are known with greater certainty.

The third column (*c*) shows the number of students who secured their work in liberal arts colleges or junior colleges which had not obtained the approval of the agencies accredited by the Council. For some of these, through the courtesy of the deans, the Council has received statements setting forth the special reasons why the students were favorably considered. Some of the students in the institutions referred to obtained credits in addition to the required minimum of sixty semester hours, and others obtained degrees from the colleges mentioned. Still others, however, obtained the bare minimum of sixty semester hours without any credits in advance even though the colleges attended had not been approved by any of the Council's accredited agencies. In this group of students, however, forty obtained all their premedical work in foreign educational institutions, the exact status of which, educationally, may require careful investigation.

The fourth column (*d*) indicates students who began their premedical study in approved colleges where they were under the supervision of instructors whose ability had thus been vouched for but who later migrated to colleges which were not so approved for the remainder of their premedical training. It is assumed that the latter institutions are less apt to have scrutinized the students' previous work as thoroughly as would have been done by officers of more rigidly standardized colleges.

Table B shows that 6,457 students were admitted to the first year classes of the seventy-four medical schools listed—an average of eighty-seven students per school. Particularly pleasing is the fact that of these 6,457 students it is found that the premedical training of 5,916, or 91.6 per cent of all students, was obtained in liberal arts colleges or junior colleges which have been investigated and approved by standardizing agencies considered as acceptable by the Council on Medical Education and Hospitals.

Of all students, 5,564 obtained all their premedical work in approved institutions, while 350 others began their premedical work in colleges that were not approved but later transferred to and completed their work in colleges that were approved; all of their work, therefore, was investigated and vouched for by colleges that have been accredited by standardizing agencies.

It is also remarkable that, of the seventy-four medical schools listed, only three were noted which accepted thirty or more students coming from colleges which have not been approved by the agencies recommended by the Council, and in all these, certain reasons are noted for the action taken, as shown by the footnotes.

The overwhelming numbers of students who secured their premedical training in colleges approved by acceptable agencies illustrate the value of the list of approved colleges of arts and sciences and junior colleges as a means whereby prospective medical students may differentiate between colleges which are worthy of that title and those which are not so well organized, including the smaller number which may be entirely unworthy. As the list of approved schools becomes recognized, the unworthy type will have to improve or cease to exist.

These statistics also give assurance that the students now entering medical schools have obtained a basic education in the fundamental sciences—physics, chemistry and biology—in colleges that have been considered as worthy. A premedical training in approved colleges gives more assurance also that the students will have had a knowledge of English, whereby they can the better express their ideas in articles on subjects studied during their medical course, or in their subsequent practice as physicians.

Table C shows the numbers of students taking their premedical work in each state, and those who have attended colleges in Canada or in other countries.

TABLE C.—*Sources of Premedical Work*

State	Number of Institutions	Totals by States: 1 Year, No Degree	1 Year, Degree	2 years, No Degree	2 years, Degree	3 Years, No Degree	3 Years, Degree	4 Years, No Degree	4 Years, Degree	Totals, No Degree	Totals, Degree	Grand Total
Alabama	9	21	5	25	6	16	6	..	27	62	44	106
Arizona	3	2	1	2	1	7	1	..	3	11	6	17
Arkansas	11	15	1	24	1	9	..	1	7	49	9	58
California	31	91	5	96	17	91	10	16	53	294	85	379
Colorado	7	28	..	15	1	17	..	3	10	63	11	74
Connecticut	5	6	..	6	..	10	7	2	48	24	55	79
Delaware	1	1	..	1	..	..	..	1	7	3	7	10
Dist. Columbia	6	65	9	82	7	20	5	8	35	175	56	231
Florida	4	6	..	16	..	6	1	2	10	30	11	41
Georgia	16	30	2	30	2	23	3	..	29	83	36	119
Idaho	5	6	..	2	..	1	..	1	2	10	2	12
Illinois	44	236	14	264	32	48	11	2	62	490	119	609
Indiana	23	49	..	73	6	27	9	6	56	155	71	226
Iowa	20	77	3	74	2	37	7	3	20	191	32	223
Kansas	24	35	1	27	3	22	6	2	29	86	39	125
Kentucky	18	32	5	33	4	23	12	1	17	89	38	127
Louisiana	10	29	..	35	1	14	6	..	14	78	21	99
Maine	4	1	..	1	2	2	2	1	14	5	18	23
Maryland	12	12	1	15	5	12	25	1	43	40	74	114
Massachusetts	21	50	1	92	19	38	12	..	146	180	178	358
Michigan	21	61	8	64	19	88	15	10	93	223	135	358
Minnesota	18	45	..	76	5	75	3	6	21	202	29	231
Mississippi	13	13	2	28	..	7	3	..	11	48	16	64
Missouri	28	63	4	63	13	42	8	6	33	174	58	232
Montana	6	6	..	12	1	1	1	..	4	19	6	25
Nebraska	20	42	1	85	4	27	3	5	24	159	32	191
Nevada	1	..	..	..	..	..	..	..	2	..	2	2
New Hampshire	3	5	..	5	2	16	1	2	32	28	35	63
New Jersey	10	7	1	9	..	4	2	2	43	22	46	68
New Mexico	3	3	..	2	..	..	..	..	1	5	1	6
New York	40	143	3	167	17	220	38	14	417	544	475	1,019
North Carolina	20	17	2	14	4	24	6	1	58	56	70	126
North Dakota	5	6	1	10	1	14	..	..	6	30	8	38
Ohio	37	78	7	87	16	105	30	14	137	285	190	475
Oklahoma	16	29	1	39	1	17	6	1	15	86	23	109
Oregon	10	11	..	13	3	21	1	5	17	50	21	71
Pennsylvania	48	107	12	201	23	142	42	20	260	470	337	807
Rhode Island	3	3	..	11	1	2	..	..	19	16	20	36
South Carolina	11	9	2	9	2	12	4	1	23	31	31	62
South Dakota	11	8	1	10	5	3	..	..	4	21	10	31
Tennessee	30	46	6	44	6	41	3	4	39	135	54	189
Texas	45	104	2	97	11	60	11	15	60	276	84	360
Utah	6	9	..	5	2	14	3	5	7	33	12	45
Vermont	4	4	1	16	25	1	5	6	3	27	34	61
Virginia	18	23	..	53	5	54	13	12	54	142	72	214
Washington	10	19	3	23	5	9	6	4	20	55	34	89
West Virginia	17	23	3	31	4	5	3	1	17	60	27	87
Wisconsin	17	46	1	76	5	65	5	10	23	197	34	231
Wyoming	1	2	..	..	..	1	..	..	1	3	1	4
U. S. Possessions	3	4	1	10	..	9	..	..	3	23	4	27
Canada	7	4	..	1	..	3	..	..	3	8	3	11
Foreign	33	21	1	10	..	4	1	..	3	35	5	40
Totals	804	1,773	111	2,124	289	1,510	336	194	2,085	5,581	2,821	8,402

PART II. MEDICAL EDUCATION

The statistics presented for the year ended June 30, 1930, are based on reports received from the medical colleges and other reliable sources. We acknowledge here the kind cooperation of the officers of the colleges who have made the compilation of these statistics possible.

STATISTICS OF COLLEGES

Table 1, pages 500 and 501, gives the recognized medical colleges in session during 1929-1930; the population of the city; the rating given by the Council on Medical Education and Hospitals; the number of students, men and women, registered during the year; the number of 1930 graduates, men and women; the number of graduates holding collegiate degrees; the number of teachers for each college; the number of weeks of actual instruction in the college year; the total fees for each year; the executive officer of the college, and the dates of beginning and ending of the next session. The figures in heavy-faced type show the totals by states. Beginning on page 525 are given the essential facts concerning all medical colleges arranged by states.

All medical schools heretofore rated in class B have later secured the class A rating or have ceased to exist. In 1927, Temple University College of Medicine at Philadelphia and Queen's University Faculty of Medicine, Kingston, Ontario, were granted the class A rating; in 1928 Laval University Faculty of Medicine, Quebec, received the higher grade, and in 1929 the same rating was given to the New York Homeopathic College and Flower Hospital. In the light of scientific investigation, sectarianism in medicine has practically

(Continued on page 502)

TABLE 1.—STATISTICS OF MEDICAL COLLEGES IN THE UNITED STATES, PHILIPPINE ISLANDS AND CANADA

Marginal No.	NAME AND LOCATION OF COLLEGE	Population of City Where College is Located [Census Bureau Estimate of 1930]	Classification by Council on Med. Education	Number of Students Registered, 1929-30		Graduates, 1930		Graduates with A.B., B.S. or Ph.B.	No. of Teachers	Weeks in College Year	Total Fees [Dollars]				Executive Officer	Session of 1930-31		Marginal No.
				Men	Women	Men	Women				1st Year	2d Year	3d Year	4th Year		Begins 1930	Ends 1931	
	ALABAMA			**102**	**1**	..	..	..										
1	University of Alabama School of Medicine, University (Tuscaloosa)*	20,610	A	102	1	..	..	..	20	36	221.50	241.50	...	...	Stuart Graves, M.D., Dean	Sept. 10	May 26	1
	ARKANSAS			**160**	**2**	**29**	..	**20**										
2	University of Arkansas School of Medicine, Little Rock [2]	81,624	A	160	2	29	..	20	72	36	115	110	105	105	Frank Vinsonhaler, M.D., Dean	Sept. 15	June 2	2
	CALIFORNIA			**809**	**82**	**148**	**12**	**136**										
3	College of Medical Evangelists, Los Angeles [1,6]	1,231,730	A	343	27	63	5	44	232	38	258.50	248.50	334.50	316.50	Newton Evans, M.D., Dean	July 2	June 21	3
4	Stanford University School of Medicine, San Francisco [1]	625,974	A	178	15	40	2	42	207	33	387	343	315	315	William Ophüls, M.D., Dean	Oct. 1	June 15	4
5	University of California Medical School, San Francisco [1,2]	625,974	A	195	32	45	5	50	322	35	290	295	225	225	Langley Porter, M.D., Dean	Aug. 19	May 13	5
6	University of Southern California School of Medicine, Los Angeles	1,231,730	9	93	8	..	..	..	43	34	374	374	...	...	William D. Cutter, M.D., Dean	Sept. 15	June 6	6
	COLORADO			**193**	**12**	**38**	**5**	**25**										
7	University of Colorado School of Medicine, Denver [2]	287,644	A	193	12	38	5	25	170	34	211	231	181	191	Maurice H. Rees, M.D., Dean	Sept. 29	June 12	7
	CONNECTICUT			**196**	**16**	**47**	**6**	**50**										
8	Yale University School of Medicine, New Haven	162,650	A	196	16	47	6	50	192	34	505	500	300	320	Milton C. Winternitz, M.D., Dean	Sept. 25	June 10	8
	DISTRICT OF COLUMBIA			**1,018**	**17**	**205**	**4**	**96**										
9	Georgetown University School of Medicine, Washington	485,716	A	515	..	100	..	20	187	34	390	360	360	375	John A. Foote, M.D., Dean	Sept. 22	June 3	9
10	George Washington University Medical School, Washington	485,716	A	270	9	44	1	21	172	36	422	422	422	388	William C. Borden, M.D., Dean	Sept. 24	June 10	10
11	Howard University School of Medicine, Washington	485,716	A	233	8	61	3	55	71	32	264.50	259.50	259.50	266.50	Numa P. G. Adams, M.D., Dean	Oct. 1	June 5	11
	GEORGIA			**332**	**4**	**75**	**1**	**25**										
12	Emory University School of Medicine, Atlanta	347,991	A	193	..	46	..	20	133	32	270	255	255	280	Russell H. Oppenheimer, M.D., Dean	Sept. 30	June 9	12
13	University of Georgia Medical Department, Augusta [2]	59,659	A	136	4	29	1	5	76	34	105	100	100	100	William H. Goodrich, M.D., Dean	Sept. 27	June 8	13
	ILLINOIS			**2,102**	**100**	**465**	**23**	**407**										
14	Loyola University School of Medicine, Chicago [1]	3,373,753	A	483	13	89	2	75	275	35	330	330	330	330	Louis D. Moorhead, M.D., Dean	Oct. 1	June 13	14
15	Northwestern University Medical School, Chicago [1]	3,373,753	A	508	14	121	4	78	351	36	355	355	355	355	Irving S. Cutter, M.D., Dean	Sept. 26	June 15	15
16	University of Chicago, Graduate School of Medicine of the Ogden Graduate School of Science	3,373,753	A	263	28	..	..	..	144	36	375	375	375	375	B. C. H. Harvey, M.D., Dean	Oct. 1	June ..	16
17	University of Chicago, Rush Medical College [1]	3,373,753	A	314	30	139	11	150	257	36	...	...	305	325	Ernest E. Irons, M.D., Dean	Oct. 1	Aug. 31	17
18	University of Illinois College of Medicine, Chicago [1,2]	3,373,753	A	534	15	116	6	104	290	32	165	165	165	170	David John Davis, M.D., Dean	Oct. 6	June 6	18
	INDIANA			**407**	**17**	**103**	..	**92**										
19	Indiana University School of Medicine, Bloomington-Indianapolis [2]	364,073	A	407	17	103	..	92	233	34	175	175	175	175	Indianapolis—Charles P. Emerson, M.D., Dean Bloomington—B. D. Myers, M.D., Dean	Sept. 12	June 12	19
	IOWA			**484**	**24**	**95**	**2**	**53**										
20	State University of Iowa College of Medicine, Iowa City [2]	16,500	A	484	24	95	2	53	94	34	192	192	192	192	Henry S. Houghton, M.D., Dean	Sept. 22	June 1	20
	KANSAS			**223**	**10**	**40**	**4**	**29**										
21	University of Kansas School of Medicine, Lawrence-Kansas City [2,7]	392,640	A	223	10	40	4	29	138	35	162	154	155	160	Harry Roswell Wahl, M.D., Dean	Sept. 18	June 8	21
	KENTUCKY			**343**	**5**	**85**	**1**	**40**										
22	University of Louisville School of Medicine, Louisville	307,808	A	343	5	85	1	40	140	32	365	365	370	380	John Walker Moore, M.D., Dean	Sept. 15	May 29	22
	LOUISIANA			**415**	**17**	**94**	**3**	**65**										
23	Tulane University of Louisiana School of Medicine, New Orleans	455,792	A	415	17	94	3	65	157	32	305	295	280	310	C. C. Bass, M.D., Dean	Sept. 24	June 9	23
	MARYLAND			**654**	**43**	**141**	**15**	**110**										
24	Johns Hopkins University School of Medicine, Baltimore	801,741	A	250	33	57	12	69	360	34	610	610	610	610	Alan M. Chesney, M.D., Dean	Sept. 30	June 9	24
25	Univ. of Maryland School of Med. and Coll. of P. & S., Baltimore [2]	801,741	A	404	10	84	3	41	232	34	385	375	375	390	J. M. H. Rowland, M.D., Dean	Sept. 29	June 6	25
	MASSACHUSETTS			**1,181**	**41**	**285**	**4**	**192**										
26	Boston University School of Medicine, Boston [2]	783,451	A	199	20	43	4	32	148	32	396.50	396.50	393.50	406.50	Alexander S. Begg, M.D., Dean	Sept. 24	June 15	26
27	Harvard University Medical School, Boston	783,451	A	516	..	135	..	125	444	36	405	400	400	400	David L. Edsall, M.D., Dean	Sept. 22	June 18	27
28	Tufts College Medical School, Boston	783,451	A	466	21	107	10	35	240	32	357	352	352	362	A. Warren Stearns, M.D., Dean	Sept. 24	May 29	28
	MICHIGAN			**874**	**51**	**201**	**10**	**142**										
29	University of Michigan Medical School, Ann Arbor [2]	26,872	A	594	45	160	8	122	122	36	198	193	193	190.50	Arthur C. Curtis, M.D., Sec	Sept. 29	June 22	29
30	Detroit College of Medicine and Surgery, Detroit [1,2]	1,564,397	A	280	6	41	2	20	134	36	200	200	200	200	W. H. MacCraken, M.D., Dean	Sept. 25	June 20	30
	MINNESOTA			**501**	**27**	**129**	**4**	**133**										
31	University of Minnesota Medical School, Minneapolis [1,2]	464,674	A	501	27	129	4	133	294	36	225	225	225	225	E. P. Lyon, M.D., Dean	Sept. 29	June 13	31
	MISSISSIPPI			**64**	**2**	..	..	..										
32	University of Mississippi School of Medicine, University (Oxford)* [2]	2,710	[10]	64	2	..	..	..	17	34	163	163	...	...	[10]	Sept. 17	June 2	32
	MISSOURI			**902**	**10**	**193**	**4**	**111**										
33	University of Missouri School of Medicine, Columbia* [2]	10,700	A	74	..	..	..	..	32	35	141	126	...	...	Edgar Allen, M.D., Dean	Sept. 8	June 3	33
34	St. Louis University School of Medicine, St. Louis	822,032	A	550	..	122	..	61	276	32	380	375	375	395	Alphonse M. Schwitalla, Ph.D., Dean	Sept. 23	June 1	34
35	Washington University School of Medicine, St. Louis	822,032	A	298	10	74	4	50	260	36	372	367	367	372	W. McKim Marriott, M.D., Dean	Sept. 25	June 9	35
	NEBRASKA			**548**	**8**	**108**	**3**	**90**										
36	Creighton University School of Medicine, Omaha	214,175	A	236	4	46	1	36	100	35	315	305	305	315	Hermann von W. Schulte, M.D., Dean	Sept. 25	June 4	36
37	University of Nebraska College of Medicine, Omaha [2]	214,175	A	312	4	62	2	54	121	35	217	212	212	212	C. W. M. Poynter, M.D., Dean	Sept. 19	June 6	37
	NEW HAMPSHIRE			**39**	..	..	..	..										
38	Dartmouth Medical School, Hanover*	2,721	A	39	..	..	..	..	19	34	410	400	...	...	John P. Bowler, M.D., Dean	Sept. 18	June 23	38

38	Dartmouth Medical School, Hanover *	2,721	A	39	..	..	..	..	19	34	410	400	...	...	John P. Bowler, M.D., Dean	Sept. 18	June 23	38

	NEW YORK			2,538	143	589	33	444													
39	Albany Medical College, Albany	127,358	A	123	5	19	1	11	93	36	320	315	305	305	Thomas Ordway, M.D., Dean	Sept. 22	June 15	39
40	University of Buffalo School of Medicine, Buffalo	572,913	A	275	9	65	3	21	213	34	527	527	517	527	Edward W. Koch, M.D., Dean	Sept. 24	June 10	40
41	Columbia University College of Phys. and Surgs., New York City	6,958,792	A	390	33	97	7	101	603	33	535	520	520	540	William Darrach, M.D., Dean	Sept. 24	June 3	41
42	Cornell University Medical College, New York City-Ithaca	6,958,792	A	205	36	47	9	56	233	34	510	500	500	535	G. Canby Robinson, M.D., Director	Sept. 29	June 11	42
43	Long Island College Hospital, New York City-Brooklyn	2,308,500	A	431	7	100	..	49	158	32	545	560	530	560	Adam M. Miller, A.M., Dean	Sept. 29	June 6	43
44	New York Homeopathic Medical College and Flower Hospital	6,958,792	A	345	9	79	3	46	156	34	510	500	500	550	Claude A. Burrett, M.D., Dean	Sept. 15	June 2	44
45	University and Bellevue Hospital Medical College, New York City	6,958,792	A	471	24	119	4	120	264	35	535	523	512	533	Samuel A. Brown, M.D., Dean	Sept. 17	June 10	45
46	University of Rochester School of Medicine, Rochester	325,019	A	121	12	21	3	20	118	34	400	400	400	400	George H. Whipple, M.D., Dean	Sept. 22	June 15	46
47	Syracuse University College of Medicine, Syracuse	209,277	A	177	8	42	3	20	170	34	400	400	400	410	Herman G. Weiskotten, M.D., Dean	Sept. 19	June 1	47
	NORTH CAROLINA			131	4	..	..	..										
48	University of North Carolina School of Medicine, Chapel Hill *	2,697	A	78	4	..	..	..	12	35	220	220	...	...	I. H. Manning, M.D., Dean	Sept. 19	June 4	48
49	Duke University School of Medicine, Durham [6]	47,600	A	..	..	..	..	..	100	..	150	150	150	150	Wilburt C. Davison, M.D., Dean	Oct. 1	June 13	49
50	Wake Forest College School of Medicine, Wake Forest *	1,527	A	53	..	..	..	10	16	35	220	225	...	...	Thurman D. Kitchin, M.D., Dean	Sept. 16	June 4	50
	NORTH DAKOTA			63	..	..	..	..										
51	University of N. Dakota School of Med., University (Grand Forks) * [2]	15,400	A	63	..	..	..	..	13	35	65	65	...	...	H. E. French, M.D., Dean	Sept. 16	June 9	51
	OHIO			786	49	160	13	132										
52	University of Cincinnati College of Medicine [1,2]	449,331	A	266	17	54	4	43	174	35	360	360	300	320	Arthur C. Bachmeyer, M.D., Dean	Sept. 22	June ..	52
53	Western Reserve University School of Medicine, Cleveland	901,482	A	222	19	50	4	53	206	34	380	365	355	365	Torald Sollmann, M.D., Dean	Sept. 18	June 18	53
54	Ohio State University College of Medicine, Columbus [2]	280,056	A	298	13	56	.5	36	122	34	196	186	186	191	John H. J. Upham, M.D., Dean	Sept. 3	June 9	54
	OKLAHOMA			217	5	46	1	46										
55	University of Oklahoma School of Medicine, Oklahoma City [2]	182,845	A	217	5	46	1	46	108	36	128	105.50	28	28	LeRoy Long, M.D., Dean	Sept. 15	June 2	55
	OREGON			213	14	41	1	42										
56	University of Oregon Medical School, Portland [2]	299,122	A	213	14	41	1	42	211	33	200	195	190	190	Richard B. Dillehunt, M.D., Dean	Oct. 3	June 11	56
	PENNSYLVANIA			2,052	148	452	22	315										
57	Hahnemann Medical College and Hospital of Philadelphia	1,961,428	A	470	..	78	..	27	138	34	355	352	352	375	William A. Pearson, M.D., Dean	Sept. 20	June 11	57
58	Jefferson Medical College of Philadelphia	1,961,428	A	586	..	140	..	90	224	34	440	430	425	425	Ross V. Patterson, M.D., Dean	Sept. 22	June 5	58
59	Temple University School of Medicine, Philadelphia	1,961,428	A	285	5	53	..	11	172	35	415	390	390	390	William N. Parkinson, M.D., Dean	Sept. 24	June 18	59
60	University of Pennsylvania School of Medicine, Philadelphia	1,961,428	A	465	13	125	4	126	321	33	520	500	500	500	William Pepper, M.D., Dean	Sept. 26	June 17	60
61	Woman's Medical College of Pennsylvania, Philadelphia	1,961,428	A	...	116	...	14	7	78	36	350	375	400	400	Martha Tracy, M.D., Dean	Sept. 24	June 10	61
62	University of Pittsburgh School of Medicine, Pittsburgh	669,631	A	246	14	56	4	54	204	34	415	400	400	410	Raleigh R. Huggins, M.D., Dean	Sept. 22	June 10	62
	SOUTH CAROLINA			155	4	33	2	20										
63	Medical College of the State of South Carolina, Charleston	62,123	A	155	4	33	2	20	75	35	185	185	190	190	Robert Wilson, M.D., Dean	Sept. 25	June 4	63
	SOUTH DAKOTA			46	..	..	..	..										
64	University of South Dakota School of Medicine, Vermilion * [2]	2,850	A	46	..	..	..	..	11	35	50	50	...	...	George R. Albertson, M.D., Dean	Sept. 17	June 6	64
	TENNESSEE			785	22	167	5	114										
65	University of Tennessee College of Medicine, Memphis	252,049	A	393	9	84	2	35	197	44	133.50	113.50	108.50	118.50	Orren W. Hyman, Ph.D., Admin. Officer	July 11	June 10	65
66	Meharry Medical College, Nashville	153,153	A	202	4	38	..	31	52	32	218	210	210	220	John J. Mullowney, M.D., Pres.	Oct. 1	May 28	66
67	Vanderbilt University School of Medicine, Nashville	153,153	A	187	9	45	3	48	182	35	315	315	315	320	Waller S. Leathers, M.D., Dean	Sept. 23	June 10	67
	TEXAS			657	22	126	5	67										
68	Baylor University College of Medicine, Dallas	260,397	A	561	10	84	3	36	125	33	312	297	287	287	Walter H. Moursund, M.D., Dean	Sept. 29	June 1	68
69	University of Texas School of Medicine, Galveston [2]	51,939	A	296	12	42	2	31	58	34	82	78	66	80	George E. Bethel, M.D., Dean	Oct. 1	May 30	69
	UTAH			60	1	..	..	..										
70	University of Utah School of Medicine, Salt Lake City *	140,058	A	60	1	..	..	..	21	36	161	151	...	...	B. I. Burns, M.D., Dean	Sept. 29	June 6	70
	VERMONT			146	10	27	3	17										
71	University of Vermont College of Medicine, Burlington [2]	24,720	A	146	10	27	3	17	55	36	327.50	327.50	300	300	James N. Jenne, M.D., Dean	Sept. 19	June 15	71
	VIRGINIA			596	15	148	4	76										
72	Medical College of Virginia, Richmond [2]	182,883	A	360	6	93	2	49	138	35	300	307.50	292.50	322.50	Manfred Call, M.D., Dean	Sept. 16	June 2	72
73	University of Virginia Dept. of Med., University (Charlottesville) [2]	15,154	A	236	9	55	2	27	69	36	290	290	265	255	J. Carroll Flippin, M.D., Dean	Sept. 18	June 16	73
	WEST VIRGINIA			107	3	..	..	..										
74	West Virginia University School of Medicine, Morgantown * [2]	14,100	A	107	3	..	..	..	19	35	115	115	...	...	John N. Simpson, M.D., Dean	Sept. 11	June 9	74
	WISCONSIN			543	26	88	4	60										
75	University of Wisconsin Medical School, Madison [2,4]	57,815	A	282	22	36	2	38	116	36	155	133	101	120	Charles R. Bardeen, M.D., Dean	Sept. 24	June 22	75
76	Marquette University School of Medicine, Milwaukee [1]	268,962	A	261	4	52	2	42	161	34	364	354	354	339	Bernard F. McGrath, M.D., Dean	Sept. 29	June 10	76
	PHILIPPINE ISLANDS			1,194	62	89	3	5										
77	University of the Philippines, College of Med. and Surg., Manila [11]	285,306	A	298	62	28	3	5	102	37	101.75	84.25	64.25	69.25	Fernando Calderon, M.D., Dean	June 10	Mar. 24	77
78	University of St. Thomas, Faculty of Medicine and Surgery, Manila [11]	285,306	A	896	..	61	..	..	51	36	92.05	92.05	92.05	92.05	Jose Luis de Castro, M.D., Dean	June 18	Mar. 15	78
	CANADA [8]			2,600	134	425	23	177										
79	University of Alberta Faculty of Medicine, Edmonton, Alta.	69,744	A	155	14	18	2	10	78	30	170	220	220	220	Allen C. Rankin, M.D., Dean	Sept. 26	May 15	79
80	Dalhousie University Faculty of Medicine, Halifax, N.S.	60,000	A	161	1	19	..	10	64	34	225	225	225	225	John Stewart, M.D., Dean	Sept. 9	May 12	80
81	Queen's University Faculty of Medicine, Kingston, Ont.	21,753	A	206	..	49	..	10	54	30	171	179	179	204	Frederick Etherington, M.D., Dean	Sept. 24	May 27	81
82	University of Toronto Faculty of Medicine, Toronto, Ont.	569,809	A	666	68	99	11	28	262	30	171	220	300	220	Alexander Primrose, M.D., Dean	Sept. 30	May 23	82
83	University of Western Ontario Medical School, London, Ont.	60,959	A	133	15	29	1	7	71	31	200	200	208	233	A. B. Macallum, M.D., Dean	Sept. 23	May 29	83
84	McGill University Faculty of Medicine, Montreal, Que.	1,032,385	A	452	17	81	4	30	194	35	267	267	267	267	C. F. Martin, M.D., Dean	Sept. 17	May 29	84
85	University of Montreal Medical Faculty, Montreal, Que.	1,032,385	A	276	1	41	1	39	105	36	225	207	243.80	219.50	Louis de Lotbiniere Harwood, M.D., Dean	Sept. 20	June 15	85
86	Laval University Faculty of Medicine, Quebec, Que.	133,000	A	251	..	45	..	39	64	35	160	170	160	160	Arthur Rousseau, M.D., Dean	Sept. 9	June ..	86
87	University of Manitoba Faculty of Medicine, Winnipeg, Man.	202,377	A	210	18	44	3	4	130	32	205	200	210	210	S. Willis Prowse, M.D., Dean	Sept. 29	May 26	87

* Gives only the first two years of the medical course.

\# The figures given are 1930 estimates furnished by the Bureau of the Census.

1. Hospital internships required for graduation. See table 4 for the fifth year registration.

2. The following universities make an additional charge for nonresidents: Arkansas, $100; California, $300; Colorado, $132; Georgia, $300; Illinois, $35; Indiana, $75; Iowa, $264; Kansas, $50; Maryland, $150; Michigan, $80; Detroit, $85; Minnesota, $75; Mississippi, $50; Missouri, $10 per term; Nebraska, varies according to states of residence; North Dakota, $135; Ohio State, $105; Cincinnati, $50 (nonresidents of Cincinnati); Oklahoma, $200; Oregon, $60; South Dakota, $50; Texas, $150; Vermont, $75; Virginia, $20; Medical College of Virginia, $100; West Virginia, $250 and Wisconsin, $150.

3. Total fees are $5 additional each year for men.

4. Wisconsin's fourth year session is forty-eight weeks.

5. See College Items for fifth and sixth year fees.

6. Twelve months each for first two years. See College Items.

7. The population given is for Kansas City, Kansas, and Kansas City, Missouri.

8 The figures are for 1930-1931.

9. At the business meeting of the Council on Medical Education and Hospitals held in Detroit, June 23, 24, 1930, the Council voted that an acceptable status be granted for the students of this school who had finished the two years of work during the sessions 1928-29 and 1929-30. The granting of an acceptable rating for the medical school, however, was further postponed pending developments apparently in process.

10. The rating of this institution is in doubt because of reports relating to sweeping changes recently ordered in the faculties of both the University of Mississippi and its medical school.

11. The figures given are for the 1928-29 session.

(Continued from page 499)

disappeared. Two schools remain which still bear homeopathic titles, but they are teaching pharmacology and therapeutics in the same manner as other acceptable schools.

HOME STATES OF MEDICAL STUDENTS

Table 2, pages 502 and 503 shows from what states the students came who were in attendance at each medical college during the session of 1929-1930. The states having medical colleges naturally contribute larger numbers of students than those which have no medical colleges.[2]

The state furnishing the largest number of students this year was New York with 3,103, followed by Pennsylvania with 1,931, Illinois with 1,366, and Ohio with 1,265. There were 1,445 students who came from the twelve states not having medical schools: four of these states furnished more than 100 students each, these being New Jersey, 755; Washington, 130; Rhode

TABLE 2.—*Distribution of Medical*

Marginal Number	NAME OF COLLEGE	1 Alabama....251	2 Arizona....37	3 Arkansas....182	4 California....767	5 Colorado....150	6 Connecticut....218	7 Delaware....33	8 Dist. Columbia.191	9 Florida....118	10 Georgia....302	11 Idaho....48	12 Illinois....1,366	13 Indiana....574	14 Iowa....589	15 Kansas....305	16 Kentucky....360	17 Louisiana....202	18 Maine....80	19 Maryland....260	20 Massachusetts....763	Marginal Number
1	University of Alabama School of Medicine	42	1	1	..	..	..	1	..	..	5	..	1	..	..	2	4	..	..	..	..	1
2	University of Arkansas School of Medicine	2	..	111	1	1	..	..	..	1	..	..	1	4	1	..	3	1	..	..	..	2
3	College of Medical Evangelists	..	..	2	74	5	3	..	6	2	..	4	8	7	7	16	3	..	2	4	8	3
4	Stanford University School of Medicine	..	2	1	160	2	..	..	..	..	..	2	..	2	1	4	..	..	..	..	..	4
5	University of California Medical School	..	..	..	219	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5
6	University of Southern California School of Medicine	..	1	..	91	..	..	..	..	..	..	..	..	..	1	..	..	..	..	1	..	6
7	University of Colorado School of Medicine	2	..	..	18	133	1	..	..	..	..	..	4	3	1	2	..	..	..	..	1	7
8	Yale University School of Medicine	..	..	..	3	..	75	..	1	1	..	1	1	3	..	..	..	..	5	..	18	8
9	Georgetown University School of Medicine	..	..	..	1	..	25	1	64	..	..	1	..	1	..	..	..	..	1	11	30	9
10	George Washington University Medical School	2	3	..	6	..	5	1	72	..	..	3	..	1	..	..	1	..	..	8	1	10
11	Howard University School of Medicine	11	..	5	..	..	1	..	21	5	13	..	1	..	..	2	1	4	..	9	3	11
12	Emory University School of Medicine	25	..	..	..	..	1	..	..	16	107	..	..	1	..	..	..	..	..	..	..	12
13	University of Georgia Medical Department	1	..	..	..	..	..	..	..	..	134	..	..	..	..	..	1	..	..	..	..	13
14	Loyola University School of Medicine	..	..	..	4	4	2	..	..	6	..	..	257	9	7	..	1	..	..	..	3	14
15	Northwestern University Medical School	2	3	..	30	4	..	..	..	..	..	9	205	17	13	15	2	1	..	..	1	15
16	University of Chicago, Graduate School of Medicine of the Ogden Graduate School of Science	2	2	..	..	1	1	1	..	..	1	2	120	9	11	7	3	..	..	..	8	16
17	University of Chicago, Rush Medical School	8	2	3	2	1	2	..	..	4	1	4	94	14	23	5	3	1	..	..	1	17
18	University of Illinois College of Medicine	2	..	..	1	..	..	..	..	..	..	..	490	3	4	2	1	..	..	..	2	18
19	Indiana University School of Medicine	..	..	..	..	..	..	..	..	..	..	..	2	407	..	..	1	..	..	..	..	19
20	State University of Iowa College of Medicine	1	..	..	..	..	..	..	..	..	..	1	5	..	448	2	..	..	..	..	1	20
21	University of Kansas School of Medicine	..	..	..	2	2	..	..	..	..	..	..	1	..	1	177	..	..	..	..	..	21
22	University of Louisville School of Medicine	7	..	1	1	..	1	..	..	2	..	1	5	22	1	1	177	..	..	..	..	22
23	Tulane University of Louisiana School of Medicine	55	..	9	5	1	1	..	1	27	6	..	1	..	..	..	2	165	..	..	..	23
24	Johns Hopkins University School of Medicine	5	..	4	15	1	14	2	3	2	5	1	5	..	..	1	2	..	7	37	11	24
25	University of Maryland Sch. of Med. & Coll. of P. & S.	..	..	..	1	..	16	3	3	..	..	..	1	..	..	..	1	..	..	151	2	25
26	Boston University School of Medicine	..	..	..	1	..	13	..	..	..	..	..	..	..	..	2	..	..	15	..	10	26
27	Harvard University Medical School	6	1	..	16	5	10	1	2	3	7	3	14	5	5	10	5	1	15	4	134	27
28	Tufts College Medical School	..	..	..	..	..	45	..	..	..	..	..	..	..	..	..	..	..	12	..	340	28
29	University of Michigan Medical School	2	2	..	5	1	3	..	2	3	2	2	6	14	1	..	6	..	1	..	6	29
30	Detroit College of Medicine and Surgery	..	1	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	30
31	University of Minnesota Medical School	1	..	..	5	1	1	..	1	..	..	..	6	1	3	1	..	..	..	..	..	31
32	University of Mississippi School of Medicine	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	32
33	University of Missouri School of Medicine	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	1	..	..	..	..	33
34	St. Louis University School of Medicine	1	4	1	14	3	5	..	..	3	..	3	37	8	2	15	1	2	..	..	5	34
35	Washington University School of Medicine	..	..	7	10	3	..	..	..	1	..	2	36	6	2	14	3	..	..	..	1	35
36	Creighton University School of Medicine	..	..	..	42	..	1	..	..	..	1	2	7	..	31	13	1	..	..	..	..	36
37	University of Nebraska College of Medicine	..	..	..	..	3	..	..	..	..	..	..	2	..	3	6	..	..	..	..	..	37
38	Dartmouth Medical School	..	..	..	1	3	2	..	1	..	..	..	..	..	1	..	..	..	..	..	8	38
39	Albany Medical College	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	6	39
40	University of Buffalo School of Medicine	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	40
41	Columbia University College of Physicians and Surgeons	1	..	..	3	1	17	1	1	1	3	1	2	..	1	..	1	..	1	2	9	41
42	Cornell University Medical College	2	1	..	8	..	4	..	1	..	2	..	..	2	1	1	..	..	4	2	7	42
43	Long Island College Hospital	..	..	..	1	1	12	..	..	..	..	..	1	..	..	..	..	..	2	..	1	43
44	New York Homeopathic Med. Coll. & Flower Hospital	..	..	..	..	..	3	..	..	1	..	..	1	3	..	..	..	..	..	..	..	44
45	University and Bellevue Hospital Medical College	..	..	..	1	..	11	..	..	..	..	..	..	1	..	..	..	..	1	1	2	45
46	University of Rochester School of Medicine	..	..	..	1	..	7	..	..	..	1	..	1	..	..	..	..	..	2	4	7	46
47	Syracuse University College of Medicine	..	..	..	..	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	47
48	University of North Carolina School of Medicine	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..	..	..	..	48
49	Wake Forest College School of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	49
50	University of North Dakota School of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	50
51	University of Cincinnati College of Medicine	..	..	..	3	..	..	..	1	..	..	..	1	8	..	1	18	..	..	1	..	51
52	Western Reserve University School of Medicine	..	..	1	..	..	..	..	..	3	..	..	1	3	1	1	1	..	..	1	..	52
53	Ohio State University College of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	53
54	University of Oklahoma School of Medicine	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	54
55	University of Oregon Medical School	..	..	..	..	4	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	55
56	Hahnemann Medical Coll. and Hospital of Philadelphia	..	..	..	1	..	2	6	..	..	..	..	2	2	1	1	3	..	2	..	7	56
57	Jefferson Medical College of Philadelphia	1	1	..	3	..	14	5	1	6	..	..	2	2	1	..	1	..	2	6	8	57
58	Temple University School of Medicine	1	..	..	..	..	1	..	..	2	..	..	1	1	1	..	1	..	..	1	1	58
59	University of Pennsylvania School of Medicine	4	..	..	5	..	3	6	1	11	..	1	5	2	1	2	7	..	4	2	5	59
60	Woman's Medical College of Pennsylvania	1	..	1	2	..	1	3	..	..	..	..	1	2	1	1	1	..	..	4	3	60
61	University of Pittsburgh School of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	61
62	Medical College of the State of South Carolina	1	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	62
63	University of South Dakota School of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	6	..	1	..	..	..	..	63
64	University of Tennessee College of Medicine	21	..	16	2	..	..	..	..	4	..	..	2	..	..	1	11	8	..	..	..	64
65	Meharry Medical College	9	..	7	2	..	..	1	4	7	8	..	13	2	1	..	2	8	..	3	3	65
66	Vanderbilt University School of Medicine	23	..	8	1	..	..	..	..	3	2	1	1	3	..	2	23	..	..	..	..	66
67	Baylor University College of Medicine	1	2	4	1	..	..	..	..	1	..	..	..	1	2	..	2	9	..	..	..	67
68	University of Texas School of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	68
69	University of Utah School of Medicine	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	69
70	University of Vermont College of Medicine	..	..	..	1	..	11	..	..	..	..	..	..	..	..	..	..	..	1	..	16	70
71	Medical College of Virginia	1	1	..	..	..	1	..	2	1	1	..	1	..	..	..	2	..	1	3	..	71
72	University of Virginia Department of Medicine	4	..	1	..	..	..	1	3	2	..	..	1	..	..	..	2	1	..	4	1	72
73	West Virginia University School of Medicine	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	73
74	University of Wisconsin Medical School	1	..	..	..	..	..	..	..	..	..	1	12	3	..	..	..	..	..	1	..	74
75	Marquette University School of Medicine	..	..	..	..	..	2	..	..	..	..	..	6	2	2	1	..	..	1	..	1	75
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	

2. Compare with table A in the State Board Number of THE JOURNAL, April 26, 1930, p. 1308.

Island, 127, and Florida 118. Of these noncollege states, New Mexico had twenty-three, Nevada twelve and Wyoming twelve. There were 155 students who came from government possessions, Hawaii, Porto Rico and the Philippine Islands, and 155 from foreign countries.

NUMBER OF STUDENTS BY CLASSES

In table 3, page 504, the students enrolled in each college are shown by classes. The total attendance for the first year was 6,457, or 180 more than last year; for the second year 5,496, or 961 more than last year; for the third year 4,931, or 185 more than last year; while in the fourth year there were 4,713, or 162 more than in 1929.

FIFTH YEAR MEDICAL STUDENTS

There are now eleven medical schools which require that students shall have completed a fifth year as an intern in an approved hospital before they are eligible

Students by States

Marginal Number	21 Michigan....850	22 Minnesota....610	23 Mississippi....164	24 Missouri....486	25 Montana....78	26 Nebraska....382	27 Nevada....12	28 New Hampshire..53	29 New Jersey....755	30 New Mexico....23	31 New York....3,103	32 North Carolina.433	33 North Dakota..120	34 Ohio....1,265	35 Oklahoma....479	36 Oregon....60	37 Pennsylvania..1,961	38 Rhode Island...127	39 South Carolina.226	40 South Dakota..111	41 Tennessee....384	42 Texas....830	43 Utah....144	44 Vermont....111	45 Virginia....501	46 Washington....130	47 West Virginia...233	48 Wisconsin....663	49 Wyoming....14	50 U. S. Possessions, Philippines, etc.155	51 Foreign....281	Totals....21,597	Marginal Number
1	..	..	1	..	..	..	..	..	8	..	22	2	..	2	1	..	2	..	..	..	1	2	..	..	1	..	1	..	..	..	3	103	1
2	..	..	4	7	..	..	..	..	1	1	3	..	..	1	7	..	2	..	..	1	1	4	..	..	..	3	..	..	1	..	162	2
3	18	14	..	1	2	7	1	..	2	3	12	2	4	5	8	13	9	1	..	4	7	6	2	..	..	19	..	5	1	11	62	370	3
4	..	1	..	..	2	..	1	..	..	..	..	..	1	..	..	4	2	..	..	..	..	1	2	..	..	2	..	..	..	3	3	193	4
5	..	..	..	..	..	1	..	..	1	..	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	227	5
6	..	..	..	..	..	..	1	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	2	..	101	6
7	2	..	1	4	1	..	..	..	2	1	5	..	1	..	..	2	..	..	..	1	..	2	5	..	..	2	..	4	1	2	4	205	7
8	3	1	..	2	2	1	..	3	16	3	43	2	..	3	..	1	7	4	..	..	..	2	..	1	2	..	1	..	4	3	212	8
9	1	1	..	..	1	..	..	3	80	..	120	..	..	12	..	..	113	20	1	..	..	..	..	2	10	1	2	..	..	1	12	515	9
10	1	1	..	1	..	..	..	..	22	1	70	1	1	10	..	1	28	1	1	..	..	2	4	..	13	2	2	1	..	11	2	279	10
11	1	..	5	3	..	1	..	..	14	..	6	15	..	7	1	..	17	..	16	1	2	6	..	..	20	..	..	..	..	..	50	241	11
12	1	..	10	..	..	..	..	..	1	..	5	5	..	1	1	..	2	..	5	..	3	1	..	..	3	..	2	2	..	..	4	196	12
13	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	1	..	140	13
14	26	6	..	2	1	1	..	..	11	1	57	..	1	34	1	1	20	1	..	1	..	..	..	..	3	..	20	..	6	10	496	14
15	30	11	1	7	7	7	..	..	4	1	2	3	13	12	4	1	2	..	..	7	..	6	30	..	..	21	2	41	1	5	2	522	15
16	24	1	..	5	1	3	..	1	5	1	12	2	2	11	3	3	8	1	..	4	..	9	..	..	..	1	..	10	1	6	9	291	16
17	20	3	..	15	3	4	..	..	4	..	13	4	9	12	1	1	13	..	..	13	3	9	5	1	1	2	9	19	..	4	8	344	17
18	2	1	6	1	3	..	..	..	..	..	2	..	3	..	..	..	..	..	..	5	1	..	3	..	..	2	1	11	..	1	2	549	18
19	..	..	..	..	..	..	..	..	1	..	7	..	..	3	..	..	2	..	..	..	..	1	..	..	..	..	..	..	..	1	..	424	19
20	..	3	..	2	..	1	1	..	11	..	22	1	..	..	1	..	..	..	..	3	..	..	..	..	..	1	..	..	..	2	2	508	20
21	..	..	..	34	..	..	..	..	..	..	1	..	..	1	1	..	..	..	..	1	..	1	..	..	..	..	..	2	..	5	3	233	21
22	2	1	5	8	1	..	..	..	5	2	21	5	1	32	1	1	6	1	..	..	4	3	5	..	1	3	12	3	..	3	3	348	22
23	1	1	43	4	..	..	..	..	1	..	15	19	..	1	5	..	..	..	1	1	6	45	..	..	2	..	1	..	..	2	11	432	23
24	8	3	2	2	1	..	..	1	12	1	34	13	1	8	..	..	30	3	5	2	3	8	1	2	13	2	3	4	..	..	6	283	24
25	..	..	..	..	..	..	..	4	43	..	88	21	..	4	..	..	45	..	..	..	..	..	1	..	2	1	24	..	..	6	2	414	25
26	1	..	..	..	1	..	..	12	10	..	28	1	..	2	..	..	5	17	..	..	1	..	..	2	1	1	..	..	..	2	4	219	26
27	12	8	1	11	4	4	1	4	15	1	51	12	1	24	..	7	21	17	..	6	3	11	6	4	3	11	5	16	1	1	8	516	27
28	1	..	..	1	..	..	..	9	10	..	31	..	..	2	..	..	6	18	..	..	..	..	2	..	..	..	..	..	..	10	..	487	28
29	390	3	..	4	5	1	..	..	19	..	35	2	2	73	1	4	21	..	..	..	..	2	..	..	..	4	2	5	1	2	7	639	29
30	269	..	..	..	..	..	..	..	..	..	..	..	..	11	..	..	2	..	..	..	..	..	..	..	..	..	1	..	..	..	..	286	30
31	..	445	..	1	12	3	..	..	..	..	4	..	12	1	..	..	..	..	..	9	..	1	..	..	..	2	..	14	1	2	1	528	31
32	..	59	..	..	..	..	..	..	..	..	3	..	..	1	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	66	32
33	..	..	..	65	..	..	..	..	1	1	1	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	1	74	33
34	7	11	..	122	12	2	1	..	25	..	67	1	3	93	1	5	35	5	..	2	4	8	1	..	..	6	1	5	..	8	1	530	34
35	..	2	..	142	1	1	..	..	5	..	11	6	2	7	1	3	4	..	1	4	4	6	2	..	1	3	..	9	..	7	1	308	35
36	..	8*	..	4	7	65	1	..	..	..	15	..	4	2	1	4	2	..	..	12	..	2	2	..	..	7	..	1	2	3	..	240	36
37	1	4	..	3	..	269	..	..	..	..	..	..	5	..	..	..	..	..	..	7	..	1	2	..	..	1	..	2	3	4	..	316	37
38	..	..	..	1	1	..	..	3	4	..	6	..	..	2	..	1	4	..	..	..	..	..	..	1	..	..	..	..	..	..	..	39	38
39	..	..	..	..	..	..	..	..	..	..	118	..	..	..	..	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	128	39
40	..	1	..	..	..	..	..	..	3	..	258	..	..	6	..	..	10	..	..	..	..	..	..	..	..	..	..	..	..	..	2	284	40
41	3	1	4	1	..	..	..	2	65	..	261	2	1	1	..	..	10	2	3	..	2	1	2	2	2	..	..	1	..	6	6	423	41
42	..	1	..	1	..	..	1	1	22	..	158	1	..	4	..	..	9	3	..	..	..	..	..	1	..	2	..	..	..	..	1	241	42
43	..	..	..	..	..	..	..	..	27	..	3.0	1	..	1	..	..	8	2	..	..	..	..	..	..	1	..	3	..	..	6	1	438	43
44	..	..	..	..	..	..	..	..	18	..	316	..	..	7	..	..	4	..	..	..	..	..	..	..	..	..	..	..	..	..	1	354	44
45	1	..	..	..	..	..	..	..	61	..	350	3	1	2	..	1	9	2	..	..	..	..	..	..	..	1	7	..	..	..	..	495	45
46	1	..	..	..	1	..	1	..	3	..	72	..	..	14	..	..	11	..	..	..	..	..	1	..	..	1	1	..	..	..	4	133	46
47	..	..	..	..	..	..	..	..	10	..	159	3	..	..	..	..	2	2	..	..	..	..	..	..	..	..	..	..	..	3	4	185	47
48	..	..	..	..	..	..	..	..	..	..	3	71	..	..	..	..	1	..	3	..	1	..	..	..	1	..	..	..	..	..	..	82	48
49	..	..	..	..	..	..	..	..	1	..	..	48	..	..	..	..	..	..	1	..	..	..	..	..	2	..	..	..	..	..	..	53	49
50	1	3	..	..	2	..	..	..	..	..	1	..	54	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	63	50
51	3	..	..	..	..	..	..	..	..	..	2	2	..	238	..	..	..	..	..	..	..	..	..	..	..	3	2	..	..	..	283	51
52	..	..	..	..	..	1	2	..	..	..	4	..	..	193	..	..	17	..	..	..	1	..	..	..	1	4	1	1	1	3	241	52
53	..	..	..	..	..	..	..	..	..	..	..	..	..	310	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	311	53
54	..	..	..	1	..	..	..	..	..	..	..	..	..	..	217	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	222	54
55	..	..	..	..	3	..	..	..	..	..	..	..	..	..	204	..	..	..	..	..	..	..	..	..	..	12	..	..	..	2	..	227	55
56	5	1	..	1	..	1	..	..	73	..	32	..	..	16	..	1	202	10	..	..	..	1	..	..	..	1	..	..	..	1	8	470	56
57	2	1	2	5	2	2	..	2	42	..	16	29	1	51	..	1	351	9	6	..	5	3	2	..	2	3	7	1	..	5	3	585	57
58	1	..	..	..	..	..	..	1	22	..	10	2	..	7	..	..	233	2	1	..	..	..	..	..	1	..	..	..	..	..	..	200	58
59	1	3	3	6	..	1	..	1	34	..	19	41	1	16	..	..	234	..	2	..	6	6	13	..	14	6	2	6	..	1	4	478	59
60	1	..	..	1	..	1	..	2	8	..	23	2	..	3	..	1	38	1	1	1	2	1	1	..	2	..	1	2	..	2	1	116	60
61	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..	257	..	..	..	..	..	..	..	..	..	..	..	..	1	..	260	61
62	..	..	..	..	..	..	..	..	..	..	..	2	..	1	..	..	..	..	152	..	..	..	..	..	..	..	..	1	..	..	..	159	62
63	..	3	..	1	..	2	..	..	..	..	1	..	..	1	..	..	2	..	..	24	..	1	..	..	..	1	..	1	..	1	1	48	63
64	..	..	41	7	..	..	..	..	1	..	8	8	..	3	10	..	..	..	2	..	244	12	..	..	1	1	1	..	..	..	1	405	64
65	5	..	11	6	..	..	..	1	7	..	13	16	..	8	1	..	7	..	12	..	9	21	..	..	6	..	7	1	..	..	5	206	65
66	3	..	17	2	..	..	..	..	1	..	5	12	..	3	2	..	5	1	5	1	61	5	..	..	4	..	..	1	..	..	1	196	66
67	..	..	2	1	..	..	..	..	..	5	..	..	1	..	6	1	..	..	..	..	1	329	..	..	..	..	..	..	..	..	2	371	67
68	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	308	..	..	..	..	..	..	..	..	..	303	68
69	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	52	..	..	..	..	..	1	..	2	61	69
70	..	..	..	..	..	..	..	3	8	..	20	..	..	..	..	..	..	2	..	..	..	..	..	93	..	..	..	..	..	..	1	156	70
71	..	..	1	..	..	..	..	..	5	..	6	69	..	2	..	..	7	..	2	..	2	1	..	..	212	1	41	..	..	1	2	366	71
72	..	..	4	..	..	..	..	..	8	..	9	4	1	..	..	..	2	..	4	..	6	1	..	..	149	..	6	..	..	..	1	245	72
73	..	..	..	..	..	..	..	..	..	..	4	..	..	10	..	..	12	..	..	..	..	..	..	..	..	..	77	..	..	6	..	110	73
74	2	4	..	..	..	1	..	..	..	..	7	..	1	2	..	1	2	..	..	1	..	..	1	..	..	..	..	263	..	..	1	304	74
75	9	4	..	1	2	1	..	..	2	..	5	..	2	8	..	..	3	1	..	..	..	..	..	..	..	1	..	208	..	1	2	265	75
	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51		

to receive the M.D. degree. These schools and the number of students enrolled in their fifth year are given in table 4.

Of the eleven colleges, a total of 1,081 students are enrolled in the fifth year.

As a matter of fact, it is estimated that about 90 per cent of all students obtain this internship whether required to do so or not, so that the number of students who will be serving their internships during the next year will amount to slightly more than 4,000. Of the students taking internships, also, about three fourths will be obtaining their internships voluntarily. This shows how valuable the intern year is, in the opinion of recent graduates. Other data regarding the instruction of interns appear on page 508.

TABLE 3.—*Medical Students Shown by Classes*

Name of College	Enrolled During 1929-30 1st	2d	3d	4th	
University of Alabama School of Medicine	52	51	..	..	103
University of Arkansas School of Medicine	56	43	33	30	162
College of Medical Evangelists	129	76	87	78	370
Stanford University School of Medicine	51	50	43	49	193
University of California Medical School	60	53	54	60	227
University of So. California School of Med.	55	46	..	..	101
University of Colorado School of Medicine	63	48	51	43	205
Yale University School of Medicine	42	61	54	55	212
Georgetown University School of Medicine	152	155	101	107	515
George Washington University Med. School	84	73	71	51	279
Howard University School of Medicine	58	57	58	68	241
Emory University School of Medicine	57	45	48	46	196
University of Georgia Medical Department	39	42	29	30	140
Loyola University School of Medicine	159	127	116	94	496
Northwestern University Medical School	125	127	133	137	522
University of Chicago, Grad. School of Med. of the Ogden Graduate School of Science	116	137	35	3	291
University of Chicago, Rush Medical College	...	...	141	203	344
University of Illinois College of Medicine	173	128	128	120	549
Indiana University School of Medicine	119	94	106	105	424
State University of Iowa College of Medicine	152	147	102	107	508
University of Kansas School of Medicine	71	59	54	49	233
University of Louisville School of Medicine	83	88	89	88	348
Tulane Univ. of Louisiana School of Med.	132	97	103	100	432
Johns Hopkins University School of Med.	69	72	72	70	283
Univ. of Md. Sch. of Med. and Coll. of P. & S.	131	99	96	88	414
Boston University School of Medicine	70	54	48	47	219
Harvard University Medical School	125	123	131	137	516
Tufts College Medical School	134	112	122	119	487
University of Michigan Medical School	160	143	170	166	639
Detroit College of Medicine and Surgery	92	71	71	52	286
University of Minnesota Medical School	172	143	113	100	528
University of Mississippi School of Medicine	38	28	...	...	66
University of Missouri School of Medicine	40	34	...	...	74
St. Louis University School of Medicine	168	122	115	125	530
Washington University School of Medicine	82	71	78	77	308
Creighton University School of Medicine	96	43	52	49	240
University of Nebraska College of Medicine	100	84	67	65	316
Dartmouth Medical School	23	16	...	...	39
Albany Medical College	39	38	30	21	128
University of Buffalo School of Medicine	80	66	70	68	284
Columbia Univ. College of Phys. and Surgs.	115	102	102	104	423
Cornell University Medical College	61	56	68	56	241
Long Island College Hospital	120	109	109	100	438
New York Homeopathic Medical College and Flower Hospital	102	88	81	83	354
University and Bellevue Hospital Med. Coll.	134	110	128	123	495
University of Rochester School of Medicine	42	33	34	24	133
Syracuse University College of Medicine	52	53	35	45	185
University of North Carolina School of Med.	41	41	...	...	82
Wake Forest College School of Medicine	26	27	...	...	53
University of North Dakota School of Med.	30	33	...	...	63
University of Cincinnati College of Medicine	91	73	61	58	283
Western Reserve University School of Med.	68	58	60	55	241
Ohio State University College of Medicine	101	70	79	61	311
University of Oklahoma School of Medicine	75	56	44	47	222
University of Oregon Medical School	64	58	60	45	227
Hahnemann Med. Coll. and Hosp. of Phila.	170	131	101	78	470
Jefferson Medical College of Philadelphia	155	148	143	140	586
Temple University School of Medicine	110	61	65	54	290
University of Pennsylvania School of Med.	110	104	134	130	478
Woman's Medical College of Pennsylvania	44	33	24	15	116
University of Pittsburgh School of Medicine	67	67	66	60	260
Medical Coll. of the State of South Carolina	42	39	41	37	159
University of South Dakota School of Med.	21	25	...	...	46
University of Tennessee College of Medicine	122	98	98	87	405
Meharry Medical College	66	51	49	40	206
Vanderbilt University School of Medicine	50	48	50	48	196
Baylor University College of Medicine	123	88	73	87	371
University of Texas School of Medicine	107	83	75	43	308
University of Utah School of Medicine	31	30	...	...	61
University of Vermont College of Medicine	53	42	31	30	156
Medical College of Virginia	84	88	97	97	366
University of Virginia Dept. of Medicine	73	64	49	59	245
West Virginia University School of Medicine	67	43	...	...	110
University of Wisconsin Medical School	118	99	48	39	304
Marquette University School of Medicine	75	64	65	61	265
Totals for 1930	6,457	5,496	4,931	4,713	21,597
Totals for 1929	6,277	5,304	4,746	4,551	20,878
Totals for 1928	6,199	5,190	4,646	4,510	20,545

TABLE 4.—*1929-1930 Fifth Year Students in Medical Colleges Requiring the Hospital Intern Year for the M.D. Degree*

College of Medical Evangelists	69
Stanford University School of Medicine	42
University of California Medical School	46
Loyola University School of Medicine	90
Northwestern University Medical School	126
University of Chicago, Rush Medical College	236
University of Illinois College of Medicine	125
Detroit College of Medicine and Surgery	43
University of Minnesota Medical School	184
University of Cincinnati College of Medicine	65
Marquette University School of Medicine	55
Total	1,081

TABLE 5.—*Medical Colleges, Students and Graduates*

Year	No. Colleges	Students	Graduates	A.B. or B.S.	Per Cent
1880	100	11,826	3,241	.....	....
1890	133	15,404	4,454	.....	....
1900	160	25,171	5,214	.....	....
1904	160	28.142	5,747	.....	....
1906	162	25,204	5,364	.....	....
1910	131	21,526	4,440	680	15.3
1915	96	14,891	3,536	858	24.3
1920	85	13,708	3,047	1,321	43.5
1921	83	14,466	3,192	1,465	46.0
1922	81	15,635	2,529	1,455	57.5
1923	80	16,060	3,120	1,787	57.3
1924	79	17,728	3,562	2,020	56.7
1925	80	18,200	3,974	2,431	61.2
1926	79	18,840	3,962	2,388	60.3
1927	80	19,662	4,035	2,486	61.5
1928	80	20,545	4,262	2,708	63.5
1929	76	20,878	4,446	2,951	66.4
1930	76	21,597	4,565	3,211	70.0

TABLE 6.—*Women in Medicine*

Year	Women Students	Percentage of All Students	Women Graduates	Percentage of All Graduates
1904	1,129	4.8	198	3.4
1910	907	4.5	116	2.6
1915	592	4.3	92	2.6
1920	818	6.3	122	4.0
1925	910	5.2	204	5.1
1926	935	5.0	212	5.4
1927	964	4.9	189	4.7
1928	929	4.5	207	4.9
1929	925	4.4	214	4.8
1930	955	4.4	204	4.5

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NUMBER OF COLLEGES

The number of medical colleges in each decade since 1850 and in certain special years is shown in table 5. The largest number was in 1906, when there were 162 medical schools. Largely through the merging of two or more schools into one, in each of a score or more of cities, the number has gradually decreased until in 1924 only seventy-nine medical schools remained. With the opening of the new medical school of the University of Rochester, N. Y., in 1925, the number was restored to eighty.

INSTITUTIONS NO LONGER RECOGNIZED AS MEDICAL SCHOOLS

The charters of two class C institutions were revoked, respectively, June 23, 1926, and May 23, 1927, after they had been convicted of being engaged in the sale of medical diplomas:

Kansas City College of Medicine and Surgery.
St. Louis College of Physicians and Surgeons.

Two other institutions were promptly chartered, evidently as successors for the two just closed; they were conducted in the same buildings and by the same faculties, evidently, as their predecessors and therefore were no more worthy of recognition:

American Medical University.
Missouri College of Medicine and Science.

Four other institutions, from official reports, for several years had been refused recognition by the licensing boards of forty-six states and the territory of Alaska. These are:

Chicago Medical School.
College of Physicans and Surgeons, Boston.
Middlesex College of Medicine and Surgery, Cambridge, Mass.
Kansas City University of Physicians and Surgeons.

In 1928, therefore, the Council on Medical Education and Hospitals decided to retain them no longer among recognized medical schools. Their omission reduced the number of recognized medical schools to seventy-four. Last year the Eclectic Medical College of Cincinnati was suspended, leaving seventy-three colleges; but two other medical schools were opened, one at the University of Chicago, the other at the University of Southern California, and this fall the new Medical School of Duke University will be opened. This gives a list of seventy-five recognized medical schools.

TABLE 7.—*Medical Colleges, Students and Graduates by States*

State	Colleges	Students		Graduates		Graduates with A.B. or B.S.
		Men	Women	Men	Women	
Alabama	1	102	1	...	..	...
Arkansas	1	160	2	29	..	20
California	4	809	82	148	12	136
Colorado	1	193	12	38	5	25
Connecticut	1	196	16	47	6	50
District of Columbia	3	1,018	17	205	4	96
Georgia	2	332	4	75	1	25
Illinois	5	2,102	100	465	23	407
Indiana	1	407	17	103	..	92
Iowa	1	484	24	95	2	53
Kansas	1	223	10	40	4	29
Kentucky	1	343	5	85	1	40
Louisiana	1	415	17	94	3	65
Maryland	2	654	43	141	15	110
Massachusetts	3	1,181	41	285	14	192
Michigan	2	874	51	201	10	142
Minnesota	1	501	27	129	4	133
Mississippi	1	64	2	...	..	...
Missouri	3	902	10	196	4	111
Nebraska	2	548	8	108	3	90
New Hampshire	1	39	..	...	..	...
New York	9	2,538	143	589	33	444
North Carolina	3	131	4	...	..	...
North Dakota	1	63	..	...	..	...
Ohio	3	786	49	160	13	132
Oklahoma	1	217	5	46	1	46
Oregon	1	213	14	41	1	42
Pennsylvania	6	2,052	148	452	22	357
South Carolina	1	155	4	33	2	20
South Dakota	1	46	..	..	...	...
Tennessee	3	785	22	167	5	114
Texas	2	657	22	126	5	67
Utah	1	60	1	...	..	...
Vermont	1	146	10	27	3	17
Virginia	2	596	15	148	4	76
West Virginia	1	107	3	...	..	...
Wisconsin	2	543	26	88	4	80
Totals	76	20,642	955	4,361	204	3,211
		21,597		4,565		

The organization of the medical school of the University of Southern California is still incomplete, so that this school is not ready to receive an acceptable rating.

An upheaval at the University of Mississippi has resulted in an uncertainty in regard to the future standing of its medical school.

NUMBER OF MEDICAL STUDENTS

The total number of medical students in the United States (table 5) for the year ended June 30, 1930, excluding premedical, special and postgraduate students, was 21,597, an increase of 719 over last year. This is the largest enrolment of students since 1909, or twenty years ago, when 22,145 students were enrolled in the 140 medical schools then existing. Since 1919 there has been an average increase in enrolment of 433 students each year.

NUMBER OF MEDICAL GRADUATES

The total number of graduates for the year ended June 30, 1930, was 4,565, or 119 more than last year.

Although the total number of graduates decreased from 5,747 in 1904 to 2,529 in 1922, the number of graduates coming from class A medical schools has increased from 267 in 1906 to 2,929 in 1921. The lower number graduating in 1922 is due to the World War and represents the students who began as freshmen in 1918. All medical schools are now in class A, so that all the 4,565 are of class A grade. Note that since 1922 the number of graduates has rapidly increased, until this year 4,565 graduated.

WOMEN IN MEDICINE

Table 7 shows that during the last year there were 955 women studying medicine, or thirty-two more than last year. The percentage of women to all medical students this year is 4.42. There were 204 women graduates this year, ten less than last year. The percentage of women to all medical graduates was 4.47. These percentages, indeed, have fluctuated only slightly since the tabulation of these facts was begun in 1904. The lowest percentage of women was 3.2, both of students and graduates in 1912, and the highest was 6.1 in 1922 when the "war class" was graduated.

MEDICAL GRADUATES AND BACCALAUREATE DEGREES

Of the 4,565 medical graduates (table 7) 3,211, or 260 more than last year, had also obtained degrees in arts and sciences. This year 70 per cent of all graduates held collegiate degrees, as compared with only 15.3 per cent of the graduates in 1910. As noted in table 8, of the 3,211 graduates holding baccalaureate degrees, 444, the largest number, came from the New York medical colleges. The Illinois schools reported 407; Pennsylvania, 357; Massachusetts, 192; California, 136, and Ohio, 132. All of the medical schools are now requiring two or more years of college work for admission, which brings more students within reach of the combined courses for the B.S. and M.D. degrees.

The best premedical preparation is believed to be that obtained by students in the courses leading to the degree of Bachelor of Arts or Science in the college or university attended, since on the university campus they come in contact with students preparing for various other professions or line of activity and have obtained a knowledge of such professions and activities before selecting their own life work.

It must not be inferred from these statements that a baccalaureate degree should in any sense be made a requirement for the obtaining of either a medical degree or the right to practice medicine. With the requirement of two or more years of premedical study, medical education in the United States is now on a par with the requirements in other countries. There is no objection to any medical school which so desires to require entrance qualifications in excess of two years, and students who have the time and means also are urged to continue their college education and obtain the degree. It is believed, however, that provision should always be made for students otherwise exceptionally qualified who would be put to much inconvenience to obtain the two extra years of college work.

From the first, the Council on Medical Education and Hospitals has believed that for medical licensure the maximum premedical requirement legally should not exceed two years of college education.

COLLEGES, STUDENTS AND GRADUATES BY STATES

As shown in table 8, New York now has nine medical colleges—the largest number—followed by Pennsylvania with six and Illinois with five.

TABLE 8.—*College Fees, 1930-1931*

	Colleges	Per Cent		Colleges	Per Cent
$ 50 to 99	3	3.9	$300 to 349	10	13.1
100 to 149	6	7.9	350 to 399	15	19.8
150 to 199	12	15.9	400 to 499	8	10.5
200 to 249	9	11.8	500 to 599	7	9.2
250 to 299	5	6.6	600 to 699	1	1.3
Totals				76	100.0
Average fee per student				$307	

New York has the largest number of students enrolled in its medical schools, 2,681, followed by Illinois with 2,202, Pennsylvania with 2,200, and Massachusetts with 1,222. New York leads also in the number of graduates, having reported 622, followed by Illinois with 488, Pennsylvania with 474 and Massachusetts with 299.

TUITION AND OTHER FEES

In table 1, pages 500 and 501, are given the amounts charged by the various medical colleges per annum for tuition, matriculation, and laboratory and graduation fees for each student. In table 9, the seventy-six colleges have been grouped according to the amount of fees charged. Ten colleges charge fees of less than $150 a year; twenty-one charge from $150 to $250; fourteen from $250 to $350; fifteen charge from $350 to $400; eight colleges charge between $400 and $500; seven charge between $500 and $600, and one charges more than $600. The average fee per student in all colleges is $307. The nine colleges charging less than $150 are all schools of medicine of state universities, the fees referred to being for residents of those states. It is customary for state university medical schools to charge higher fees for students coming from other states. These charges are shown in a footnote to table 1.

MEDICAL SCHOOL FEES DURING NINETEEN YEARS

Tuition fees in medical schools have been gradually increased during the last nineteen years. From 1910 to 1915, the majority of medical schools were charging fees of $150 or less. From 1916 to 1922 the majority were charging fees above $150, while since 1920 the majority have included several medical schools charging more than $300. The percentage of medical schools charging more than $300 increased from 4.7 in 1920 to 52 per cent in 1929. Now, forty-six (61.3 per cent of all colleges) are charging fees over $250 per student, and seven (9.3 per cent) are charging over $500. The average fees charged per student by all colleges in 1910 was $118; in 1915 it had increased to $145; in 1920, to $180; in 1925, to $250; in 1930 to $307.

In 1910, several medical schools were still paying all expenses—and a few were making profits—from students' fees. At present, however, no medical college can maintain the extensive laboratories, pay the essential instructors and properly teach modern medicine without having an income much larger than that received alone from students' fees.

As the cost of conducting medical schools has increased, there has also been an increase—and properly so—in the fees charged for tuition. A large provision has been made for scholarships and loan funds for the benefit of deserving students who may be lacking financially. With such financial aid such students will be enabled to use their entire time in obtaining a larger experience in examining more patients while under teachers who are also skilled clinicians.

TABLE 9.—*Increase in Medical College Fees During Sixteen Years*

	Showing for each Year the Number and Percentage of Colleges Requiring																		
	$50 or Less		$50 to $100		$100 to $150		$150 to $200		$200 to $250		$250 to $300		$300 to $350		$350 to $450		$450 to $650		Total Colleges
Year	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	
1910	7	5.3	39	29.3	62	46.6	22	16.5	2	1.5	1	0.8	..	...	..	...	..	...	133
1911	2	1.7	33	27.5	54	45.0	27	22.5	4	3.3	..	...	..	...	..	...	..	...	120
1912	2	1.7	17	14.7	61	52.5	32	27.6	3	2.6	1	0.9	..	...	..	...	..	...	116
1913	3	2.8	20	18.9	43	40.6	34	32.1	5	4.7	1	0.9	..	...	..	...	..	...	106
1914	5	4.9	11	10.8	44	43.1	35	34.3	6	5.9	1	1.0	..	...	..	...	..	...	102
1915	6	6.4	10	10.6	31	33.0	38	40.5	7	7.4	2	2.1	..	...	..	...	..	...	94
1916	6	6.5	13	14.0	23	24.7	41	44.1	8	8.6	2	2.1	..	...	..	...	..	...	93
1917	5	5.3	11	11.6	29	30.5	39	41.0	7	7.4	4	4.2	..	...	..	...	..	...	95
1918	5	5.6	11	12.4	22	24.7	35	39.3	12	13.5	4	4.5	..	...	..	...	..	...	89
1919	5	5.8	9	10.6	14	16.5	35	41.2	18	21.2	4	4.7	..	...	..	...	..	...	85
1920	3	3.5	9	10.5	19	22.3	27	32.0	19	22.3	4	4.7	3	3.5	1	1.2	..	...	85
1921	3	3.6	7	8.4	15	18.2	25	30.1	18	21.7	7	8.4	7	8.4	1	1.2	..	...	83
1922	3	3.7	7	8.6	13	16.1	19	23.5	19	23.5	9	11.1	10	12.3	1	1.2	..	...	81
1923	2	2.5	7	8.7	6	7.5	22	27.5	18	22.5	11	13.8	13	16.3	1	1.2	..	...	80
1924	1	1.3	5	6.3	8	10.1	21	26.6	14	17.7	14	17.7	13	16.5	3	3.8	..	...	79
1925	..	...	6	7.5	6	7.5	20	25.0	13	16.3	13	16.2	19	23.7	3	3.8	..	...	80
1926	..	...	4	5.1	7	8.9	14	17.7	13	16.4	14	17.7	18	22.8	6	7.6	3	3.8	79
1927	..	...	5	6.4	5	6.4	17	21.8	11	14.0	15	19.3	15	19.3	5	6.4	5	6.4	78
1928	..	...	3	4.1	5	6.7	12	15.8	11	14.5	8	10.6	15	19.2	17	22.4	5	6.7	76
1929	..	...	3	4.0	5	6.5	12	16.0	9	12.0	7	9.4	13	17.3	19	25.4	7	9.4	75
1930	..	...	3	3.9	6	7.9	12	15.9	9	11.8	6	7.9	10	13.2	21	27.6	9	11.8	76

Chart 1 shows the *decline* in the number of medical colleges from 1904 to 1929 inclusive and the *increase* in the numbers of those which adopted, respectively, one and two or more years of college work for admission. Thus it will be seen that the decrease was in the numbers of the lower standard colleges. As noted in the present statistics, there are now seventy-six medical schools all but one of which is rated in class A.

Chart 2 shows the relative number of physicians in proportion to population for forty-one countries. Note that the United States has 1,266 physicians for each 100,000 of the population, thereby having a far more generous supply than any other country. Austria comes next, followed by Great Britain.

Note also the countries at the other extreme; in their order they are Persia, Siam, Boliva, Guatemala, etc.

The figures are based on direct correspondence with the countries named or information from other sources considered reliable.

With the constantly increasing numbers of students and graduates, there is no need of any alarm regarding the supply of physicians in the United States the next quarter century.

LIFE CHART OF MEDICAL COLLEGES

Attention is called to the chart appearing on pages 510 to 513 which shows by a series of vertical dark bands the years during which each of 315 medical colleges in the United States were in existence. Viewing the page as one opens the book, each of the light horizontal lines represents a year as mentioned at the right and left markings. The sixteen colleges organized prior to 1825 are mentioned in the inset appearing on page 512.

At the bottom of each page opposite to its vertical dark band is given the key number and name of each college, the date it was organized and, if extinct, the year it was closed.

SPECIAL INSTANCES OF MEDICAL SCHOOL MERGERS

Particular attention is called in the chart to the groups of colleges merged in Indiana, Kansas and Kentucky.

In Indiana, prior to 1905, three medical schools were giving the full four year course and at Indiana University was given a preparatory course for students intending to study medicine. Overtures were made by Indiana University whereby the three medical schools would merge and be taken over by the university. The three medical schools were merged, but instead of joining with Indiana University they united with Purdue

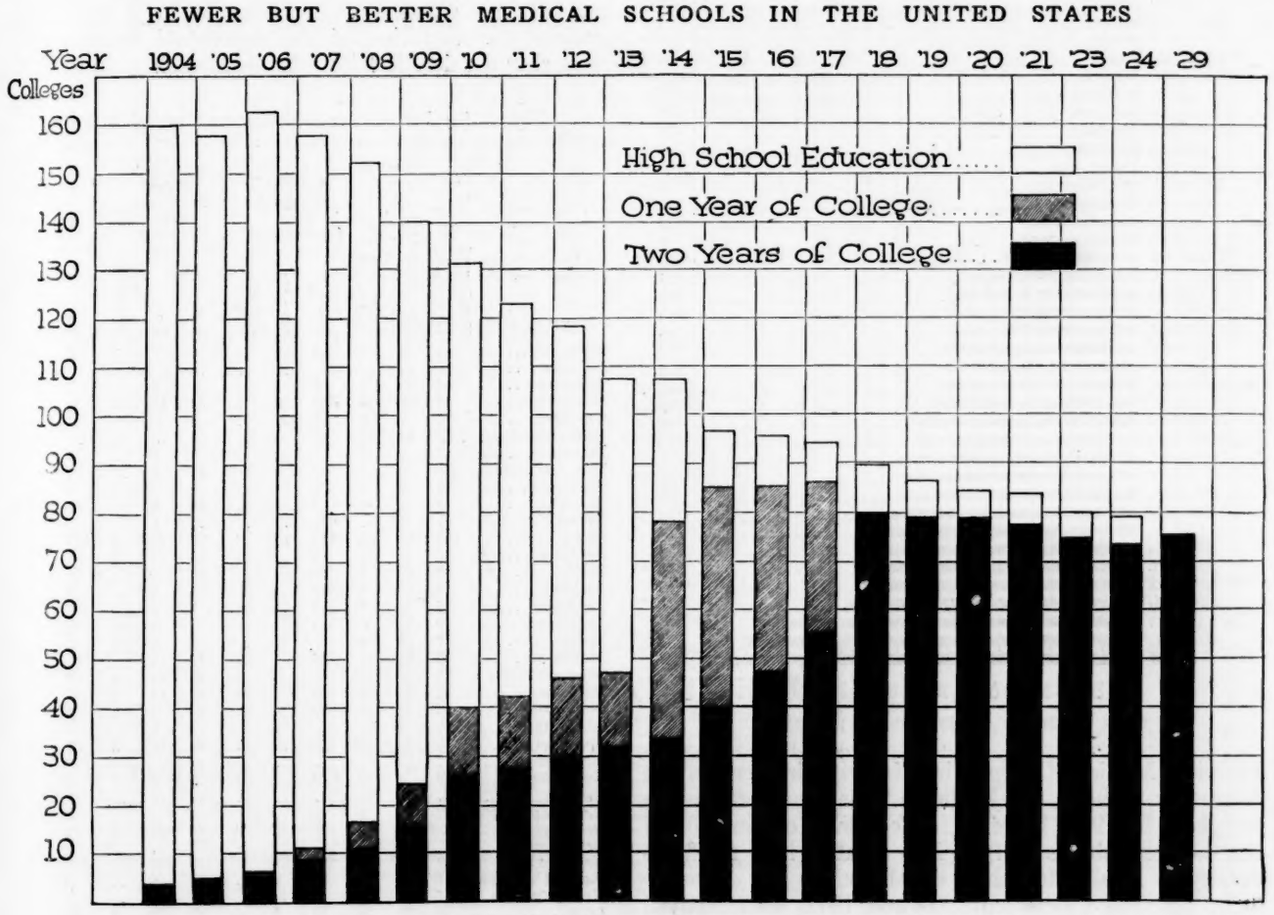


Chart 1.—Showing the increasing requirements of premedical education.

A break in any dark band connected with a dotted line indicates the years during which the institution was suspended. Such suspensions as will be noted in the chart were common among the medical schools of the South during the Civil War (1861-1865). Shaded lines indicate that (*a*) only the first two years of the medical course were offered; (*b*) medical degrees were granted by the university as an examining body although no actual medical teaching was done; (*c*) no degrees were granted; (*d*) only a preparatory course was given; (*e*) only the last two or clinical years were given; (*f*) degrees bearing the name of the university were granted for work done in another medical school which also granted degrees, and (*g*) the college was reported as not in good standing with its own state medical licensing board. Colleges are grouped to bring together those which have been merged. The bands representing colleges merged are connected by pen lines.

University, a school of technology. Thereupon a medical school was opened at Indiana University offering the first two years in medicine. In 1906 a medical school was organized at Indianapolis offering the work of the last two years in medicine and in 1907 this clinical school was united with Indiana University School of Medicine. Thereby the state of Indiana had two medical schools, one of which was connected with the state university and the other connected with a school of technology, both of which offered four year courses in medicine and both of which were expecting to receive from the state funds for their maintenance. Because of this rivalry it appears that considerable feeling was developed. A year later, however, in 1908, a meeting was called to which was invited prominent medical educators in various parts of the country. As a consequence, the two schools were united as the Indiana University School of Medicine.

In Kansas City, since 1900, six medical schools, including five in Missouri and one in Kansas, were merged into what is now the University of Kansas School of Medicine.

In Kentucky, five medical schools underwent a merger whereby two were merged into the University of Louisville and two became the Louisville and

PHYSICIANS IN THE UNITED STATES AND ABROAD

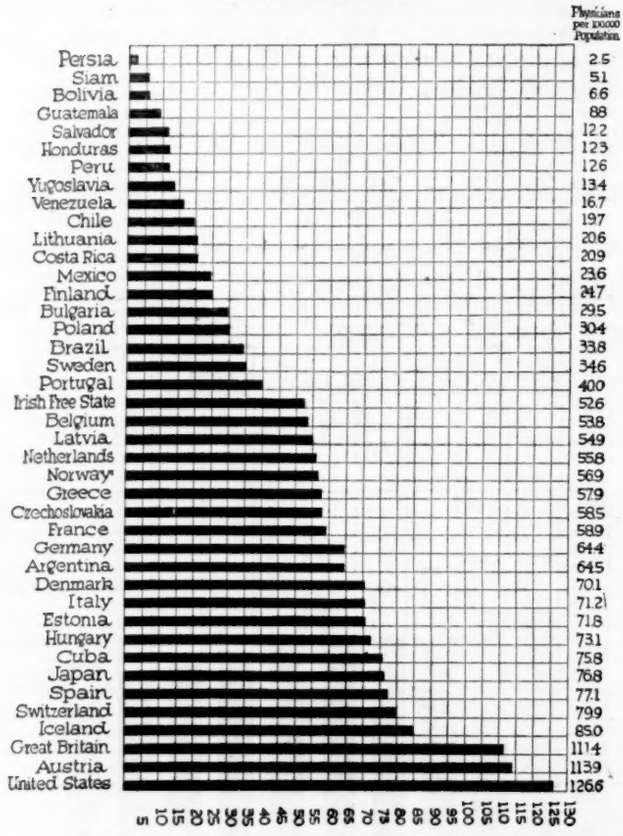


Chart 2.—Supply of physicians to population.

Hospital Medical College; but for certain reasons the Kentucky School of Medicine was omitted in the merger. In 1908, however, by common consent all of the medical schools merged into what is now the University of Louisville School of Medicine.

In Tennessee, between 1909 and 1912, four medical schools, two previously located at Nashville and two in Memphis, were merged into what has since been known as the University of Tennessee School of Medicine.

This chart brings up to date the Life Chart of Medical Colleges which was published in THE JOURNAL, Aug. 28, 1913, on pages 578 to 581 inclusive, and since that time the number of schools has been reduced from 107 to 76.

A number of medical schools which enrolled no students and others which were reported as fraudulent or otherwise not in good standing—altogether about 150 institutions—have been omitted from the chart.

An investigation of the chart will show that a large proportion of the medical schools which ceased to exist in the last fifty years have done so through merging with other medical schools. Most of these medical schools which merged had been rated in classes A or B. Of those which became extinct, however, a large proportion had been rated in class C by the Council on Medical Education and Hospitals.

PART III. HOSPITAL INTERN SERVICE

A SUMMARY OF REPORTS FROM 1,491 PHYSICIANS REGARDING THEIR INTERN EXPERIENCE

In accordance with a custom established several years ago, the Council on Medical Education and Hospitals again addressed an inquiry to former interns regarding the type of service provided in hospitals using interns. This survey was general in nature, not being restricted to those 648 institutions at present on the Council's list of hospitals approved for intern training.

A total of 1,491 reports were received, representing 700 hospitals, of which 493 are approved for intern training. In some instances four and five reports were received on the same institution. This survey has enabled the Council to summarize in a systematic manner the facilities of the individual hospitals for rendering a valuable fifth year in medicine; to note the intern's participation in surgery and obstetrics; to secure further data on the rotating service as compared with the straight service; to estimate the extent to which clinical-pathologic conferences and staff meetings are utilized in the instruction of the interns; to gage the amount of laboratory and x-ray work assigned to them, as well as to gather other valuable information pertinent to the intern hospital.

TABLE 1.—*Instruction and Supervision of Interns*

State	Number of Reports from Ex-Interns	No. Hospitals Represented	Approved for Internships	Interns Attended Staff Conferences: Yes	Interns Attended Staff Conferences: No	Interns Attended Staff Conferences: Indefinite	Attended Clinical Meetings and Lectures: Yes	Attended Clinical Meetings and Lectures: No	Attended Clinical Meetings and Lectures: Indefinite	Interns Report Staff Supervision: Yes	Interns Report Staff Supervision: No	Interns Report Staff Supervision: Indefinite
Alabama	12	6	2	10	2	..	4	7	1	6	5	1
Arizona	..	..	..	..	..	..	..	..	..	..	..	..
Arkansas	4	3	1	3	1	..	..	4	..	4	..	..
California	62	29	25	53	8	1	46	14	2	48	13	1
Colorado	17	7	6	17	..	..	9	8	..	13	4	..
Connecticut	29	11	11	27	2	..	20	8	1	27	2	..
Delaware	5	2	1	5	..	..	3	2	..	5	..	..
Dist. Columbia	18	9	6	17	1	..	11	7	..	14	4	..
Florida	8	4	3	6	1	1	2	5	1	5	3	..
Georgia	19	12	6	16	2	1	13	5	1	17	2	..
Idaho	1	1	..	1	..	..	..	1	..	..	1	..
Illinois	125	58	36	110	10	5	79	43	3	109	16	..
Indiana	37	12	11	36	..	1	24	12	1	33	4	..
Iowa	20	6	6	20	..	..	11	9	..	16	3	1
Kansas	12	5	4	12	..	..	5	7	..	9	3	..
Kentucky	17	10	6	14	1	2	7	7	3	13	4	..
Louisiana	15	11	6	15	..	..	7	6	2	14	..	1
Maine	7	4	4	7	..	..	3	3	1	6	..	1
Maryland	32	15	13	27	4	1	19	13	..	31	1	..
Massachusetts	71	32	23	67	3	1	43	25	3	64	6	1
Michigan	52	23	18	50	..	2	34	15	3	42	10	..
Minnesota	32	14	13	29	3	..	24	6	2	26	6	..
Mississippi	1	1	..	..	1	..	..	1	..	..	1	..
Missouri	53	24	19	53	..	..	40	11	2	51	1	1
Montana	..	..	..	..	..	..	..	..	..	..	..	..
Nebraska	10	7	5	9	..	1	7	2	1	9	1	..
Nevada	..	..	..	..	..	..	..	..	..	..	..	..
New Hampshire	1	1	1	1	..	..	1	..	..	1	..	..
New Jersey	75	30	25	71	1	3	40	29	6	61	13	1
New Mexico	..	..	..	..	..	..	..	..	..	..	..	..
New York	247	128	74	223	21	3	139	101	7	220	22	5
North Carolina	9	6	3	5	4	..	3	6	..	5	3	1
North Dakota	1	1	1	1	..	..	1	..	..	1	..	..
Ohio	78	36	24	71	4	3	48	26	4	70	7	1
Oklahoma	5	2	2	5	..	..	2	3	..	5	..	..
Oregon	13	5	5	13	..	..	8	5	..	11	1	1
Pennsylvania	174	82	66	163	7	4	110	61	3	150	12	3
Rhode Island	12	6	2	12	..	..	7	3	2	11	1	..
South Carolina	11	7	2	11	..	..	4	7	..	8	1	2
South Dakota	..	..	..	..	..	..	..	..	..	..	..	..
Tennessee	20	11	9	18	2	..	11	8	1	20	..	..
Texas	40	18	12	39	..	1	17	18	5	36	4	..
Utah	14	5	5	13	1	..	8	6	..	9	5	..
Vermont	7	3	1	7	..	..	3	3	1	7	..	..
Virginia	36	18	6	32	3	1	19	16	1	32	4	..
Washington	29	10	9	29	..	..	13	14	2	19	10	..
West Virginia	11	5	3	9	2	..	2	9	..	9	2	..
Wisconsin	49	20	18	40	..	..	34	13	2	42	7	..
Wyoming	..	..	..	..	..	..	..	..	..	..	..	..
Totals	1,491	700	493	1,376	84	31	881	549	61	1,288	182	21

Of the 43 states represented in the data received, the largest number of reports for any one state refer to New York hospitals. These reports, 247 in number, cover 74 approved intern hospitals and 54 hospitals not approved for intern training; 174 reports were received on Pennsylvania hospitals, and 125 on hospitals of

TABLE 2.—*Surgical Training*

State	1st Assistant	2d Assistant	3d or 4th Assistant	Minor Surgery: Unanswered	Major Surgery: Yes	Major Surgery: No	Major Surgery: Unanswered	No Surgical Department	Total Reports
Alabama	12	..	..	..	12	..	..	8	4	..	..	12
Arizona	..	..	..	..	..	..	..	..	..	..	..	..
Arkansas	4	..	..	..	4	..	..	3	1	..	..	4
California	41	20	1	..	53	9	..	28	34	..	..	62
Colorado	11	3	1	..	12	3	..	6	9	..	2	17
Connecticut	25	2	..	2	26	..	3	24	3	2	..	29
Delaware	4	1	..	..	5	..	..	4	1	..	..	5
Dist. Columbia	15	3	..	..	18	..	..	12	6	..	..	18
Florida	7	1	..	..	7	1	..	6	2	..	..	8
Georgia	14	3	1	1	18	1	..	10	9	..	..	19
Idaho	1	..	..	..	1	..	..	1	..	..	..	1
Illinois	108	14	1	1	120	4	..	73	51	..	1	125
Indiana	28	9	..	..	36	..	1	17	20	..	..	37
Iowa	14	5	..	1	17	3	..	11	8	1	..	20
Kansas	11	1	..	..	9	3	..	5	7	..	..	12
Kentucky	10	6	1	..	17	..	..	8	9	..	..	17
Louisiana	9	6	..	..	14	1	..	9	6	..	..	15
Maine	6	..	..	1	7	..	..	7	..	..	..	7
Maryland	21	6	..	..	25	2	..	6	19	2	5	32
Massachusetts	60	6	1	1	64	3	1	50	17	1	3	71
Michigan	36	10	6	..	40	8	4	17	32	3	..	52
Minnesota	21	11	..	..	29	3	..	19	13	..	..	32
Mississippi	1	..	..	..	1	..	..	1	..	..	..	1
Missouri	35	8	6	1	48	2	..	24	26	..	3	53
Montana	..	..	..	..	..	..	..	..	..	..	..	..
Nebraska	7	3	..	..	8	1	1	4	5	1	..	10
Nevada	..	..	..	..	..	..	..	..	..	..	..	..
New Hampshire	1	..	..	..	1	..	..	1	..	..	..	1
New Jersey	63	9	..	1	71	2	..	59	13	1	2	75
New Mexico	..	..	..	..	..	..	..	..	..	..	..	..
New York	179	49	6	4	223	13	2	160	73	5	9	247
North Carolina	4	3	..	1	7	1	..	2	6	..	1	9
North Dakota	1	..	..	..	1	..	..	1	..	..	..	1
Ohio	30	42	1	1	65	9	..	22	51	1	4	78
Oklahoma	2	3	..	..	5	..	..	1	4	..	..	5
Oregon	8	4	1	..	13	..	..	9	4	..	..	13
Pennsylvania	109	55	5	2	163	8	..	80	90	1	3	174
Rhode Island	12	..	..	..	12	..	..	8	4	..	..	12
South Carolina	10	1	..	..	9	2	..	3	8	..	..	11
South Dakota	..	..	..	..	..	..	..	..	..	..	..	..
Tennessee	17	3	..	..	20	..	..	14	6	..	..	20
Texas	24	15	1	..	35	5	..	25	15	..	..	40
Utah	12	2	..	..	13	..	1	11	3	..	..	14
Vermont	7	..	..	..	6	1	..	6	..	1	..	7
Virginia	18	15	1	2	28	8	..	9	27	..	..	36
Washington	20	8	1	..	25	4	..	8	21	..	..	29
West Virginia	7	4	..	..	10	1	..	8	3	..	..	11
Wisconsin	25	19	3	..	42	5	..	14	33	..	2	49
Wyoming	..	..	..	..	..	..	..	..	..	..	..	..
Totals	1,050	350	37	19	1,340	103	13	794	643	19	35	1,491

Illinois. No reports were received on hospitals in Arizona, Montana, Nevada, New Mexico, South Dakota and Wyoming.

STAFF CONFERENCES

That the staff conference has a definite place in the instruction of interns is shown by the fact that 1,376 interns reported that attendance at those meetings is compulsory. This is encouraging, and it is felt that the number might be augmented had the thirty-one interns not answering the question done so.

On this point, therefore, we feel that the Council's requirements are being substantially met. While it is realized that only 493 of the 700 hospitals considered in this survey are approved for intern training, yet the "Essentials in a Hospital Approved for Interns" are applicable to all hospitals assuming the duty of instructing interns.

Clinical conferences and lectures, though of unlimited value to interns, are not, apparently, being utilized to the same extent as the staff conferences. Only 881 of the 1,491 interns reporting received the benefits of those conferences, which must, of necessity, be educational in nature; 549 definitely reported nonattendance, while 61 failed to answer the question.

SUPERVISION OF INTERNS

Another interesting analysis is that regarding the supervision of interns. Apparently the majority of staff members are alert to the need of close supervision during the fifth year. Following are some of the methods employed, as described by the former interns:

"Completely supervised by chief of staff and various chiefs on services."

"Daily ward rounds with visiting staff."

"By visiting men who are teachers in medical school."

"Ward rounds, personal instruction, weekly conferences, daily supervision of charts."

"By resident and visiting staff."

"By circulating staff."

TABLE 3.—*Obstetric Training*

State	Number of Deliveries by Interns: Under 10	10 to 49	Over 50	None	Unanswered	Number of Deliveries Assisted in: Under 10	10 to 49	Over 50	Number Not Stated	None	Unanswered	Total Reports
Alabama	2	3	5	..	2	3	6	..	2	..	1	12
Arizona	..	..	..	..	..	..	..	..	..	..	..	..
Arkansas	..	3	1	..	..	..	..	2	2	..	..	4
California	15	28	12	6	1	4	16	11	18	4	9	62
Colorado	3	4	4	5	1	3	1	3	5	4	1	17
Connecticut	1	13	12	1	2	2	11	5	5	2	4	29
Delaware	2	3	..	..	..	1	1	1	2	..	..	5
Dist. Columbia	2	7	1	8	..	1	4	3	3	5	2	18
Florida	..	5	2	1	..	..	3	..	3	1	1	8
Georgia	2	3	6	8	..	..	3	1	12	3	..	19
Idaho	1	..	..	..	..	..	..	..	1	..	..	1
Illinois	18	46	21	34	6	..	4	47	57	11	6	125
Indiana	10	19	1	7	..	..	6	15	16	..	..	37
Iowa	3	7	2	6	2	..	..	8	10	..	2	20
Kansas	4	1	..	6	1	..	..	3	3	6	..	12
Kentucky	2	11	..	4	..	2	2	2	9	1	1	17
Louisiana	3	5	1	5	1	..	3	2	6	4	..	15
Maine	..	7	..	..	..	..	2	..	3	..	2	7
Maryland	..	14	..	15	3	..	6	3	9	11	3	32
Massachusetts	5	18	21	21	6	2	22	8	14	19	6	71
Michigan	18	21	3	10	..	2	10	19	14	7	..	52
Minnesota	2	18	5	6	1	3	6	9	13	1	..	32
Mississippi	..	1	..	..	..	..	..	..	1	..	..	1
Missouri	14	19	1	17	2	3	3	8	21	14	4	53
Montana	..	..	..	..	..	..	..	..	..	..	..	..
Nebraska	5	..	..	4	1	..	2	1	4	1	2	10
Nevada	..	..	..	..	..	..	..	..	..	..	..	..
New Hampshire	..	1	..	..	..	..	..	..	..	1	1	1
New Jersey	2	49	17	5	2	5	25	7	24	6	8	75
New Mexico	..	..	..	..	..	..	..	..	..	..	..	..
New York	17	86	50	84	10	3	33	29	73	84	25	247
North Carolina	1	3	..	2	3	..	1	2	3	1	2	9
North Dakota	..	1	..	..	..	..	..	1	..	..	..	1
Ohio	16	36	10	11	5	3	10	24	25	9	7	78
Oklahoma	4	..	..	1	..	..	2	1	2	..	..	5
Oregon	4	6	..	2	1	1	1	7	4	..	..	13
Pennsylvania	14	110	35	7	8	6	61	38	54	7	8	174
Rhode Island	..	..	3	8	1	..	1	1	1	8	1	12
South Carolina	1	4	..	5	1	..	..	1	7	3	..	11
South Dakota	..	..	..	..	..	..	..	..	..	..	..	..
Tennessee	3	10	6	1	..	1	7	2	8	1	1	30
Texas	13	9	9	9	..	2	10	12	13	2	1	40
Utah	3	7	2	1	1	..	4	3	5	..	2	14
Vermont	1	4	..	2	..	..	1	2	2	2	..	7
Virginia	4	13	2	14	3	3	5	4	14	8	2	36
Washington	9	13	..	6	1	..	2	10	12	3	2	29
West Virginia	2	8	..	1	..	..	3	2	4	..	2	11
Wisconsin	11	25	2	11	..	2	5	20	15	7	..	49
Wyoming	..	..	..	..	..	..	..	..	..	..	..	..
Totals	217	641	234	334	65	52	282	317	499	235	106	1,491

Unfortunately, however, some adverse comments are noted:

"An intern can do as much or as little work as he pleases; the supervision is poor."

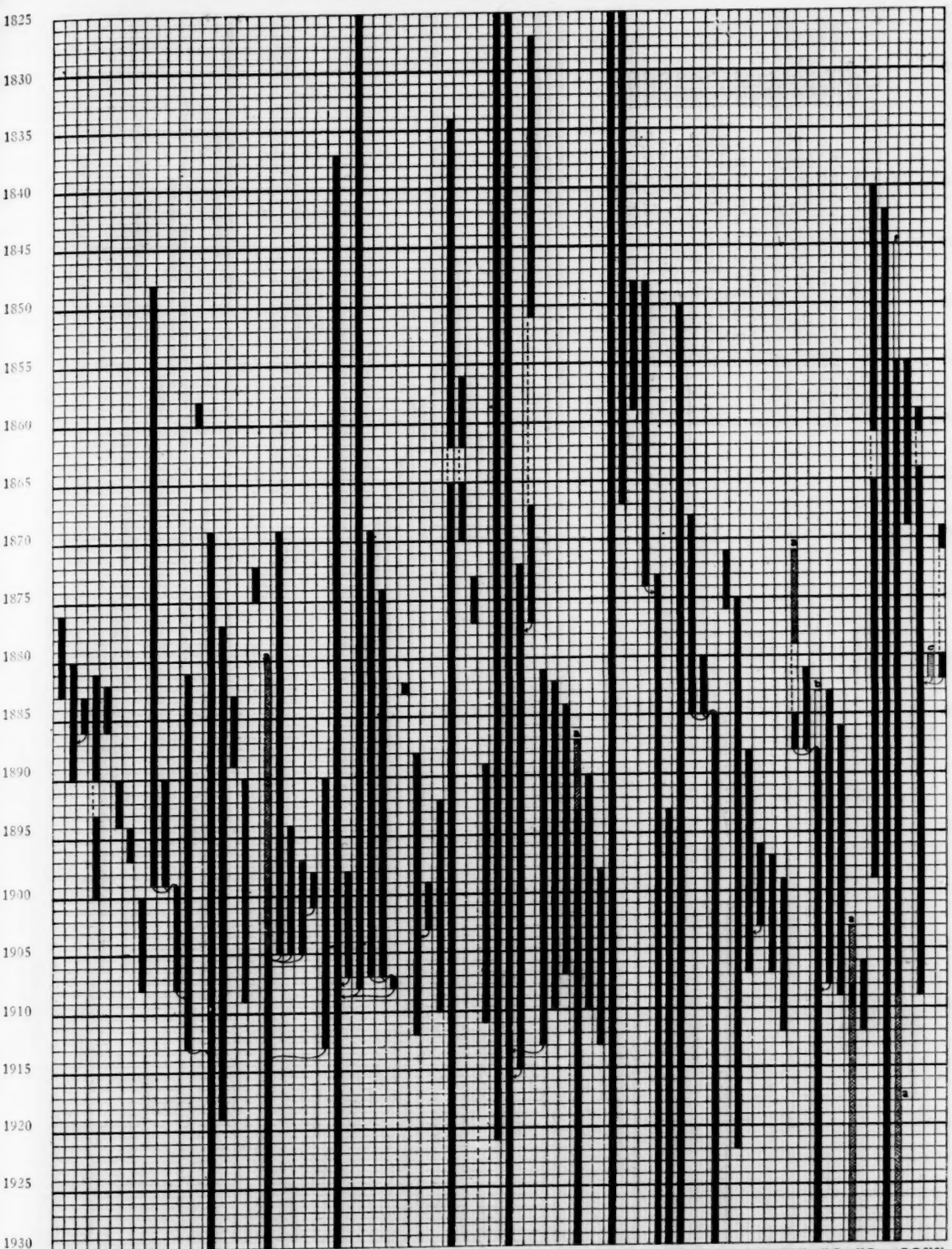
"Very poor supervision or none at all; sometimes interfered with by superintendent of nurses."

"In no way except that chief intern requires that histories are taken."

(Continued on page 514)

LIFE CHART OF THE MEDICAL COLLEGES OF THE UNITED STATES

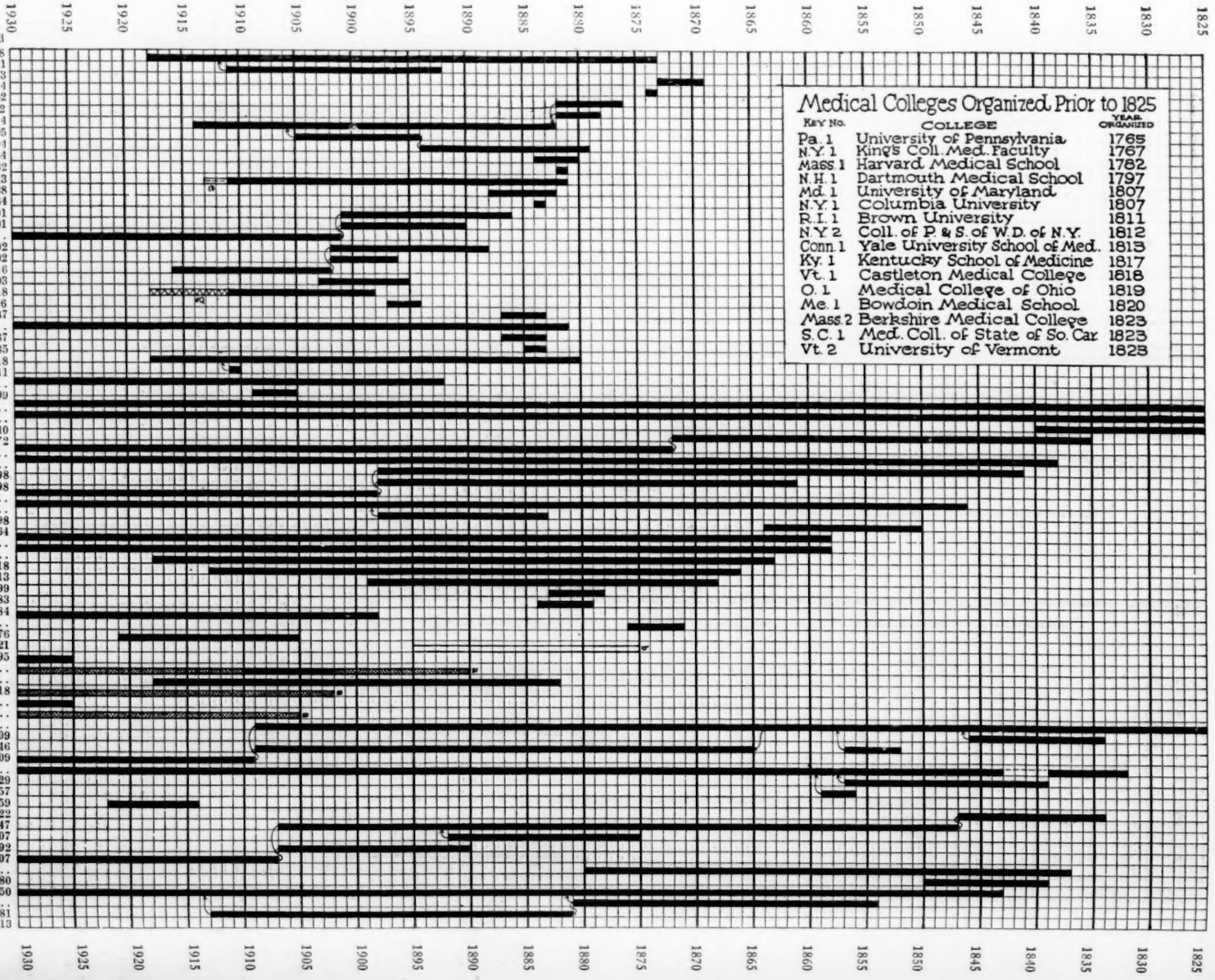
Key No.		Year Organized	Year Closed
Ala.	1 Greffenburg Institute	1852	1862
Ala.	2 U. of Alabama	1859	....
Ala.	3 Southern Univ. M. D.	1872	1886
Ala.	4 Birmingham Med. Coll.	1894	1915
Ala.	5 M. C. Montezuma Univ.	1896	1898
Ark.	1 U. of Arkansas	1879	....
Ark.	2 C. of P. and S. Little R.	1906	1911
Cal.	1 Cooper Med. Coll.	1858	1912
Cal.	11 Stanford Univ.	1908	....
Cal.	2 U. of California	1863	....
Cal.	5 Hahne. Med. Coll.	1881	1918
Cal.	6 U. of So. Calif.	1885	....
Cal.	9 C. of P. and S., L. A.	1903	1920
Cal.	4 Calif. Eclec. M. C.	1879	1915
Cal.	7 C. of P. and S., S. F.	1896	1921
Cal.	8 Oakland C. of M. and S.	1902	1920
Cal.	12 Coll. of Med. Exam.	1909	....
Colo.	1 Denver Coll. of Med.	1881	1902
Colo.	3 Gross Med. Coll.	1887	1902
Colo.	5 Denver and Gross Coll.	1902	1911
Colo.	2 U. of Colorado	1883	....
Colo.	4 Denver C. of P. and S.	1894	1909
Conn.	1 Yale University	1813	....
D.C.	1 Geo. Wash. University	1825	....
D.C.	4 Natl. Univ. M. D.	1884	1903
D.C.	2 Georgetown Univ.	1851	....
D.C.	3 Howard Univ.	1869	....
D.C.	5 Wash. Homeo. M. C.	1893	1896
Fla.	1 Tallahassee C. M. and S.	1883	1886
Ga.	1 U. of Georgia	1828	....
Ga.	2 So. Botan. M. C.	1839	1884
Ga.	9 Ga. C. Eclec. M. and S.	1877	1916
Ga.	4 Savannah Med. Coll.	1853	1880
Ga.	5 Emory University	1854	....
Ga.	10 So. Med. Coll.	1878	1898
Ga.	11 Atlanta C. P. and S.	1898	1913
Ga.	6 Oglethorpe M. C.	1856	1861
Ga.	13 Atlanta S. of M.	1905	1913
Ga.	17 International M. M. C.	1904	1908
Ga.	18 Hosp. M. C., Eclec.	1908	1911
Ga.	19 So. C. M. and S.	1911	1914
Ill.	1a Ogden G. S. of M. (U. of Chi.)	1924	....
Ill.	1 Rush Medical Coll.	1843	....
Ill.	2 M. D. Illinois Coll.	1843	1848
Ill.	3 Franklin M. C.	1842	1845
Ill.	4 General Med. Coll.	1859	1924
Ill.	10 Chi. Homeo. M. C.	1876	1904
Ill.	5 C. M. and S. (Phy-Med.)	1885	1911
Ill.	20 Chi. C. M. and S. (Phy-Med.)	1897	1899
Ill.	22 Chi. C. M. and S.	1901	1917
Ill.	8 Bennett Med. Coll.	1868	1915
Ill.	43 Loyola University	1915	....
Ill.	17 Illinois Med. Coll.	1894	1910
Ill.	39 Reliance Med. Coll.	1907	1911
Ill.	6 Northwestern Univ.	1859	....
Ill.	9 No. Univ. Wo. M. C.	1870	1902
Ill.	11 U. of Illinois	1882	....
Ill.	10 Amer. M. Miss. Coll.	1895	1910
Ill.	12 Chaddock Sch. of Med.	1882	1890
Ill.	13 Harvey Med. Coll.	1891	1905
Ill.	14 Natl. Med. Univ.	1891	1909
Ill.	16 Jenner Med. Coll.	1892	1917
Ill.	15 Hering Med. Coll.	1892	1913
Ill.	18 Dunham Med. Coll.	1895	1902
Ill.	23 Dearborn Med. Coll.	1903	1907
Ind.	1 Indiana Med. Coll.	1844	1849
Ind.	2 Med. Coll. of Evansville	1849	1884
Ind.	3 Ind. Cent. Med. Coll.	1850	1854
Ind.	4 Ind. Med. Coll., Indianapolis	1869	1878
Ind.	6 C. of P. and S. of Ind.	1873	1878
Ind.	8 Med. Coll. of Indiana	1878	1905
Ind.	9 Cent. Coll. P. and S.	1879	1905
Ind.	10 Fort Wayne C. of M.	1879	1905
Ind.	18 Ind. Med. Coll. Purdue U.	1905	1908
Ind.	20 Indiana University	1903	....
Ind.	21 State C. of P. and S.	1906	1907
Ind.	5 Physio-Med. College	1873	1900

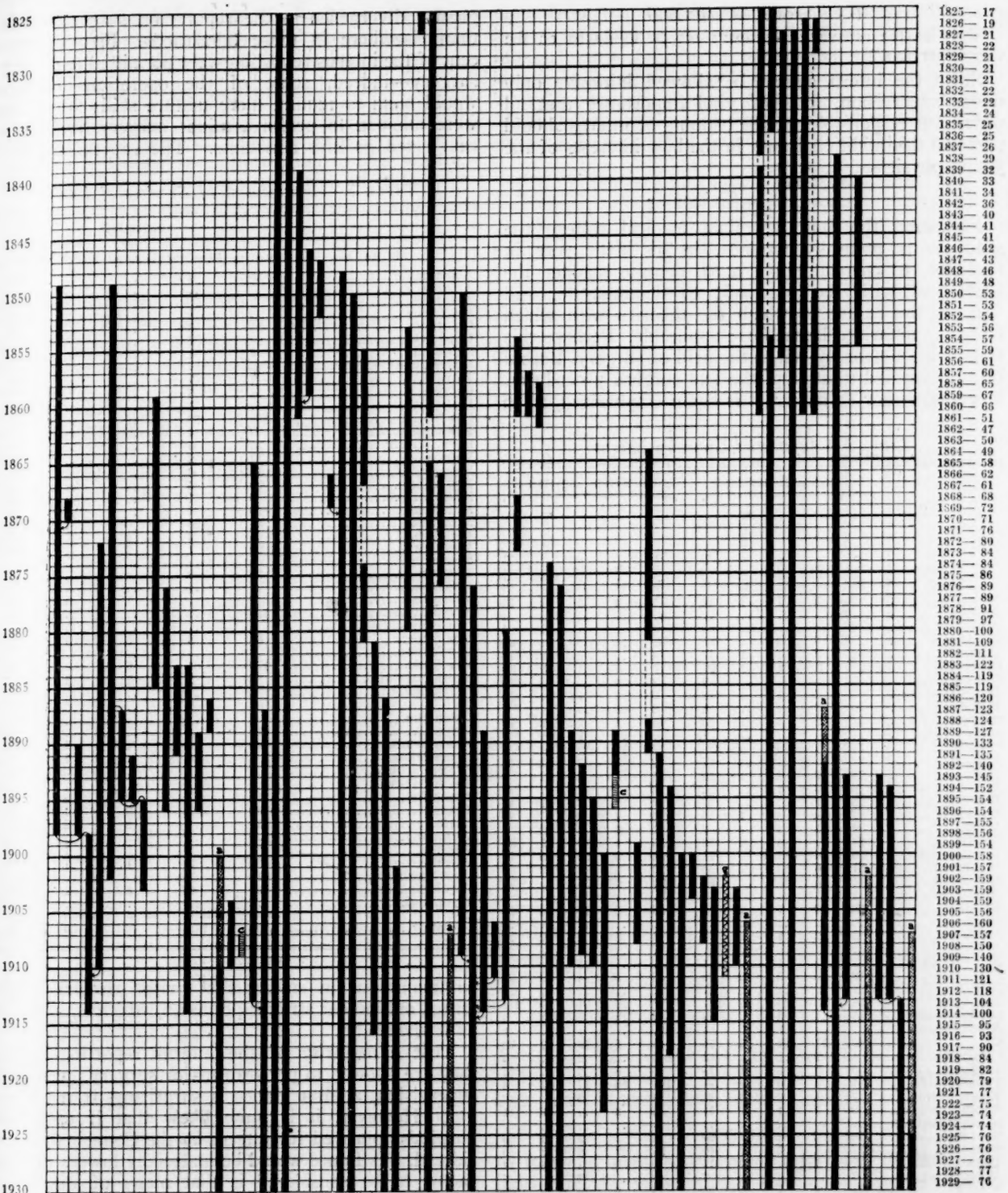


Key No.			Year Organized	Year Closed
Ind.	7	Med. Coll. of Fort Wayne	1876	1882
Ind.	11	Ind. Eclec. Med. Coll.	1880	1890
Ind.	14	Beach Med. Institute	1883	1886
Ind.	12	Curtis Phy-Med. Inst.	1881	1900
Ind.	13	Hosp. Med. Coll. Evans.	1882	1886
Ind.	16	Eclec. Coll. P. and S.	1890	1894
Ind.	19	American Med. Coll.	1894	1897
Ind.	17	Eclec. Med. Coll.	1900	1908
Ia.	1	C. of P. and S., Keokuk	1848	1899
Ia.	9	Kookuk Medical College	1890	1899
Ia.	10	Keo. M. C. C. of P. and S.	1899	1908
Ia.	6	Drake University	1881	1913
Ia.	2	Iowa Medical College	1858	1860
Ia.	3	State Univ. of Iowa	1869	....
Ia.	4	State U. of Iowa Col. Homeo.	1877	1919
Ia.	7	King Eclec. Med. Coll.	1883	1889
Ia.	8	Sioux City C. of M.	1890	1909
Kan.	1	Kansas Med. Coll.	1872	1875
Kan.	2	Univ. of Kansas	1880	....
Mo.	3	Kansas City Med. Coll.	1869	1905
Kan.	4	Med.-Chir. C. of Kansas City	1894	1905
Mo.	32	Col. P. and S. Kansas City	1897	1901
Mo.	41	Columbian Med. Coll.	1898	1913
Kan.	3	Kansas Medical Coll.	1890	....
Ky.	2	Univ. of Louisville	1837	....
Ky.	9	Kentucky Univ. M. D.	1898	1907
Ky.	1	Ky. Sch. of Med.	1817	1908
Ky.	4	Louisville Med. Coll.	1869	1907
Ky.	5	Hosp. Coll. of Med.	1874	1903
Ky.	11	Louisville and H. M. C.	1907	1907
Ky.	6	Louisville Sch. of Med.	1883	1883
Ky.	7	Louis. Natl. Med. Coll.	1912	1912
Ky.	10	M. D. State U. Louisville	1899	1903
Ky.	8	So. Wet. H. M. C.	1892	1910
La.	1	Tulane University	1834	....
La.	2	New Orleans S. of M.	1856	1870
La.	3	Char. H. Med. Coll.	1873	1877
La.	4	Flint Med. Coll.	1889	1911
Me.	1	Bowdoin Med. Sch.	1820	1921
Md.	1	Univ. of Maryland	1807	....
Md.	3	C. of P. and S. Baltimore	1872	1915
Md.	2	Washington Univ.	1827	1877
Md.	4	Baltimore Med. Coll.	1881	1913
Md.	5	Woman's Med. Coll.	1882	1910
Md.	6	Baltimore University	1884	1907
Md.	7	Johns Hopkins Univ.	1887	....
Md.	8	Atlantic Med. Coll.	1890	1910
Md.	9	Maryland Med. Coll.	1898	1913
Mass.	1	Harvard Med. Sch.	1782	....
Mass.	2	Berkshire Med. Coll.	1823	1867
Mass.	4	Worcester Med. Coll.	1848	1859
Mass.	3	New Eng. Female M. C.	1848	1874
Mass.	5	Boston University	1873	....
Mass.	7	Tufts Coll. Med. Sch.	1893	....
Mich.	1	Univ. of Michigan M. S.	1850	1885
Mich.	2	Detroit Med. Coll. of Med.	1868	1885
Mich.	6	Michigan Coll. of Med.	1880	1885
Mich.	7	Detroit C. M. and S.	1885	....
Mich.	3	Detroit Homeo. M. C.	1871	1876
Mich.	5	Univ. of Mich. Homeo. M. S.	1875	1922
Mich.	8	Mich. C. M. and S.	1888	1907
Mich.	9	Saginaw Valley M. C.	1896	1903
Mich.	10	Grand Rapids M. C.	1897	1907
Mich.	11	Detroit Homeo. Coll.	1899	1912
Minn.	1	St. Paul Med. Coll.	1871	1888
Minn.	2	Minneapolis Hosp. Coll.	1883	1898
Minn.	5	Minneapolis C. of P. S.	1883	1908
Minn.	6	U. of Minn. Homeo.	1886	1909
Miss.	1	U. of Mississippi	1903	....
Miss.	2	Mississippi M. C.	1906	1913
Mo.	1	Missouri Med. Coll.	1840	1899
Mo.	2	Washington Univ.	1842	....
Mo.	3	U. of Missouri	1845	....
Mo.	4	Humboldt Med. Coll.	1855	1869
Mo.	5	Homeo. M. C. of Mo.	1859	1909
Mo.	16	Hering Med. Coll.	1880	1882
Mo.	6	St. Louis C. Homeo. P. S.	1869	1882

LIFE CHART OF THE MEDICAL COLLEGES OF THE UNITED STATES—*Continued*

Key No.			Year Organized	Year Closed
Mo.	10	Natl. U. Arts and Sciences	1873	1918
Mo.	28	Barnes Med. Coll	1892	1911
Mo.	11	Med. Coll. Kans. City	1869	1873
Mo.	12	St. Louis Hahne. M. C	1873	1874
Mo.	14	St. Louis Hosp. M. C	1876	1882
Mo.	15	C. of P. and S. St. Jos	1878	1882
Mo.	22	Ensworth Med. Coll	1882	1914
Mo.	29	Central M. C. St. Jos	1894	1905
Mo.	18	Northwestern Med. Coll	1879	1891
Mo.	17	Joplin C. of P. and S	1880	1884
Mo.	19	Joplin Med. Coll	1881	1882
Mo.	20	Univ. Med. Coll. Kans. City	1881	1913
Mo.	21	Kans. City Hosp. C. of M	1882	1888
Mo.	23	Woman's Med. Coll	1883	1884
Mo.	24	Beaumont Hosp. Med. Coll	1886	1901
Mo.	27	Marion-Sims C. of M	1890	1901
Mo.	34	St. Louis University	1901	....
Mo.	26	Kans. City Homeo. M. C	1888	1902
Mo.	31	Hahnemann M. C	1896	1902
Mo.	35	Southwest S. of M	1902	1916
Mo.	30	Woman's M. Col. Kan. City	1895	1903
Mo.	33	Eclectic Med. Univ	1898	1918
Mo.	37	St. L. Woman's M. C	1894	1896
Neb.	1	U. of Nebraska, Lincoln	1883	1887
Neb.	5	U. of Nebraska, Omaha	1881	....
Neb.	3	U. Nebr. C. of M. Homeo	1883	1887
Neb.	2	U. Nebr. Eclec. Dept	1883	1885
Neb.	4	Lincoln Med. Coll	1890	1918
Neb.	8	Nebr. Med. Coll	1910	1911
Neb.	6	Creighton University	1892	....
Neb.	7	Nebraska C. of M	1905	1909
N.H.	1	Dartmouth Med. Sch	1797	....
N.Y.	1	Columbia University	1807	....
N.Y.	2	C. of P. and S. of W. D	1812	1840
N.Y.	4	Geneva Medical College	1835	1872
N.Y.	15	Syracuse University	1872	....
N.Y.	3	Albany Med. Coll	1838	....
N.Y.	5	New York Univ. M. D	1841	1898
N.Y.	10	Bellevue Hosp. M. C	1861	1898
N.Y.	19	U. and Bellevue H. M. C	1898	....
N.Y.	6	Univ. of Buffalo	1846	....
N.Y.	18	Niagara University	1883	1898
N.Y.	7	New York Med. Coll	1850	1864
N.Y.	8	Long Island Coll. Hosp	1858	....
N.Y.	9	N. Y. Homeo. M. C	1858	....
N.Y.	11	N. Y. M. C. and H. for Wo	1863	1918
N.Y.	13	Eclectic M. C. of C. of N. Y.	1866	1913
N.Y.	14	W.M.C. of N.Y.I. for W.C	1868	1899
N.Y.	16	U. S. Med. Coll	1878	1883
N.Y.	17	C. of P. and S. Hom. Buff	1879	1884
N.Y.	20	Cornell University	1898	....
N.Y.	35	N.Y. Free M. C. for Wo	1871	1876
N.Y.	43	Fordham University	1905	1921
N.Y.	12	Reg. U. of S. of N.Y.	1875	1895
N.Y.	45	Univ. of Rochester	1925	....
N.C.	1	U. of North Carolina	1890	....
N.C.	3	Leonard Med. Sch	1882	1918
N.C.	5	Wake Forest Coll	1902	....
N.C.	7	Duke University	1925	....
N.D.	1	Univ. of North Dakota	1905	....
O.	1	Medical Coll. of Ohio	1819	1909
O.	27	Cincinnati Med. Coll	1834	1846
O.	9	Miami Med. Coll	1852	1909
O.	41	U. of Cincinnati	1909	....
O.	2	Eclec. Med. Coll	1832	1929
O.	30	Amer. M. C. Eclec	1839	1857
O.	31	Eclec. C. of M. and S	1856	1859
O.	42	Ohio State Univ. Homeo	1914	1922
O.	28	Willoughby Univ	1835	1847
O.	3	Starling Med. Coll	1847	1907
O.	14	Columbus Med Coll	1875	1892
O.	25	Ohio Med. Univ	1890	1907
O.	40	Ohio State Univ	1907	....
O.	4	Physio-Med. Coll	1836	1880
O.	5	Botan-Med. Coll	1838	1850
O.	6	West. Reserve Univ	1843	....
O.	11	Univ. of Wooster	1864	1881
O.	12	Cleveland C. of P. S	1881	1913





Key No.		Year Organized	Year Closed
O.	7 Cleveland U. M. and S.	1849	1898
O.	33 Homeo. M. C. Women	1868	1871
O.	23 Cleveland M. C. Homeo	1890	1898
O.	25 Cleve-Pulte M. C.	1898	1914
O.	13 Pulte Med. Coll.	1872	1910
O.	8 Cincinnati C. M. and S.	1849	1902
O.	20 Woman's Med. Coll.	1867	1895
O.	24 Presby. H. and W. M. C.	1891	1895
O.	21 Laura Mem. W. M. C.	1895	1903
O.	10 Phy-Med. Institute	1879	1885
O.	16 Amer. Eclec. M. C.	1876	1896
O.	18 Northwestern Ohio M. C.	1883	1891
O.	19 Toledo Med. Coll.	1883	1911
O.	22 Natl. Nor. U. C. of M.	1859	1896
O.	37 Dayton Med. Univ.	1886	1889
Okla.	1 U. of Oklahoma	1900	....
Okla.	2 Epworth C. of Med.	1904	1910
Okla.	4 Oklahoma Med. Coll.	1907	1909
Ore.	1 Willamette Univ.	1865	1913
Ore.	2 Univ. of Oregon	1887	....
Pa.	1 U. of Pennsylvania	1765	....
Pa.	2 Jefferson Med. Coll.	1825	....
Pa.	3 Pennsylvania Med. Coll.	1839	1861
Pa.	4 Phila. C. M. and S.	1816	1859
Pa.	5 Franklin Med. Coll.	1847	1852
Pa.	18 Hahnemann Med. Coll.	1866	1869
Pa.	9 Hah. M. C. and Hosp.	1848	....
Pa.	7 Woman's Med. Coll.	1850	....
Pa.	8 Penn. Med. Univ.	1835	1881
Pa.	11 Medico-Chirur. Coll.	1881	1916
Pa.	12 U. of Pittsburgh	1886	....
Pa.	13 Temple University	1901	1939
Pa.	14 Phila. U. of M. and S.	1853	1859
R.I.	1 Brown Univ.	1811	1827
S.C.	1 M. C. of S. of So. Car.	1823	....
S.C.	2 U. of South Carolina	1866	1876
S.D.	1 U. of South Dakota	1907	1909
Tenn.	1 U. of Nashville	1850	....
Tenn.	6 U. of Tennessee	1875	1911
Tenn.	10 Lincoln Mem. Univ.	1889	1911
Tenn.	15 C. of P. and S. Memphis	1906	1913
Tenn.	8 Memphis Hosp. Med. Coll.	1880	1913
Tenn.	2 Memphis Medical College	1854	1873
Tenn.	3 Eclectic Med. Instl.	1857	1861
Tenn.	4 Shelby Medical Coll.	1858	1862
Tenn.	5 Vanderbilt University	1874	....
Tenn.	7 McIlarry Med. Coll.	1876	1910
Tenn.	9 Chattanooga Med. Coll.	1889	1909
Tenn.	11 U. of the South	1857	1910
Tenn.	12 Med. Coll. of Tennessee	1905	1910
Tenn.	14 Hannibal Med. Coll.	1900	1923
Tenn.	16 Chattanooga Natl. M. C.	1889	1896
Tex.	1 Texas M. C. and Hosp.	1899	1908
Tex.	2 Univ. of Texas	1891	....
Tex.	3 Fort Worth Sch. of Med.	1894	1913
Tex.	4 Baylor University	1900	....
Tex.	10 Dallas Med. Coll.	1900	1904
Tex.	5 Physio-Med. Coll.	1902	1908
Tex.	6 Southern Meth. Univ.	1903	1915
Tex.	7 Gate City Med. Coll.	1902	1911
Tex.	8 Coll. P. and S. Dallas	1903	1910
Utah	1 Univ. of Utah	1906	....
Vt.	1 Castleton Med. Coll.	1818	1861
Vt.	2 Univ. of Vermont	1823	....
Vt.	3 Vermont Med. Coll.	1827	1856
Va.	1 Univ. of Virginia	1827	....
Va.	3 M. S. of Valley of Va.	1826	1861
Va.	3 Winchester Med. Coll.	1826	1861
N.C.	4 No. Carolina Med. Coll.	1887	1914
Va.	4 Medical Coll. of Va.	1838	....
Va.	5 Univ. C. of Med.	1893	1913
Va.	5 Randolph-Macon Coll.	1840	1855
W.Va.	1 West Virginia Univ.	1902	....
Wis.	3 Wis. Coll. of P. and S.	1893	1913
Wis.	3 Milwaukee Med. Coll.	1894	1913
Wis.	6 Marquette University	1913	....
Wis.	5 Univ. of Wisconsin	1907	....

(Continued from page 509)

"Only as the attending physicians see fit to do so on the various services."

Since the intern should be allowed initiative only under supervision, it is of vital importance that all physicians responsible for the training of interns should perform this additional duty in the best interests of the young physician.

SURGICAL DEPARTMENT

Following the four years in medical college the graduate is naturally anxious, in his fifth year in medicine, to correlate in a more definite manner the theoretical with the practical; to demonstrate, still further, the extent to which the theories with which he has familiarized himself are applicable. Perhaps this urge is most strongly felt in the field of surgery. Before being permitted to attempt the real surgical procedures, however, minor or major, it is again emphasized, as in the "Essentials," that skill in diagnosis and postoperative treatment be the first objective. This is a stepping stone, as it were, to a first assistantship in the operating room; later, with discretion and under the most rigid supervision, surgical procedures may be entrusted to him.

The logic of this procedure, its practicability and efficacy, are unquestioned; yet we find a seemingly greater divergence in the reports on surgical services than elsewhere in these tabulations. Fifty-three per cent of the interns reporting were permitted to do major surgery—indeed, some of the operations described would seem to require more mature skill; 90 per cent were allowed to perform minor surgery, and 70 per cent acted as first assistants. The reports appear to be unanimous in stating that major surgery is permitted only under strict supervision, which is, of course, as it should be.

That a majority of the interns reporting indicate they are allowed to perform major surgery, even under supervision, at first glance is surprising, if not alarming. However, it is quite likely that if only those hospitals approved for interns by the Council were considered, this figure would be materially lower. Another factor to be considered is that many of the interns reporting doing major surgery have in all probability really been allowed very few such operations, and those operations were doubtless appendectomies, herniotomies or other common procedures. Nevertheless, the idea, apparently growing, that interns are in the hospital primarily to acquire surgical technic and become surgeons should be discouraged without additional graduate preparation in that subject.

One hundred and three interns reported receiving no experience in minor surgery and 643 none in major surgery.

The intern should receive instruction and experience in the administration of the various kinds of anesthetics during his hospital year; however, in the

TABLE 4.—*Anesthetics Given by Interns*

	In Surgical Department					In Obstetrical Department				
State	Many	Few	None	Unanswered	Total	Many	Few	None	Unanswered	Total
Alabama	7	3	1	1	12	5	4	2	1	12
Arizona	..	..	..	..	..	..	..	..	..	..
Arkansas	4	..	..	..	4	4	..	..	..	4
California	37	9	15	1	62	40	12	10	..	62
Colorado	12	3	..	2	17	14	..	2	1	17
Connecticut	21	3	3	2	29	17	5	2	5	29
Delaware	5	..	..	..	5	3	2	..	..	5
Dist. Columbia	7	5	5	1	18	9	2	7	..	18
Florida	6	2	..	..	8	3	5	..	..	8
Georgia	11	2	5	1	19	14	1	2	2	19
Idaho	1	..	..	..	1	..	..	1	..	1
Illinois	84	7	25	9	125	74	19	28	4	125
Indiana	37	..	..	..	37	27	5	3	2	37
Iowa	12	3	4	1	20	11	5	2	2	20
Kansas	8	3	1	..	12	3	2	7	..	12
Kentucky	15	2	..	..	17	11	2	3	1	17
Louisiana	7	4	3	1	15	5	4	6	..	15
Maine	4	1	2	..	7	1	2	2	2	7
Maryland	24	..	6	2	32	15	4	10	3	32
Massachusetts	50	4	11	6	71	34	9	23	5	71
Michigan	31	6	13	2	52	28	8	14	2	52
Minnesota	11	5	16	..	32	11	6	15	..	32
Mississippi	1	..	..	..	1	..	..	1	..	1
Missouri	32	10	7	4	53	25	8	17	3	53
Montana	..	..	..	..	..	..	..	..	..	..
Nebraska	5	2	1	2	10	4	2	2	2	10
Nevada	..	..	..	..	..	..	..	..	..	..
New Hampshire	..	..	1	..	1	..	..	1	..	1
New Jersey	62	5	5	3	75	53	9	4	9	75
New Mexico	..	..	..	..	..	..	..	..	..	..
New York	158	26	37	26	247	122	20	91	14	247
North Carolina	6	..	3	..	9	4	2	2	1	9
North Dakota	..	..	1	..	1	..	..	1	..	1
Ohio	40	11	21	6	78	44	8	19	7	78
Oklahoma	4	1	..	..	5	3	..	2	..	5
Oregon	5	2	5	1	13	5	6	2	..	13
Pennsylvania	151	8	6	9	174	104	36	17	17	174
Rhode Island	7	1	2	2	12	4	..	8	..	12
South Carolina	9	1	..	1	11	6	2	..	3	11
South Dakota	..	..	..	..	..	..	..	..	..	..
Tennessee	13	6	1	..	20	13	1	5	1	20
Texas	27	7	5	1	40	26	7	6	1	40
Utah	12	1	..	1	14	5	5	1	3	14
Vermont	7	..	..	..	7	5	..	2	..	7
Virginia	23	6	7	..	36	13	9	10	4	36
Washington	11	7	10	1	29	10	8	10	1	29
West Virginia	10	1	..	..	11	6	4	..	1	11
Wisconsin	25	12	12	..	49	19	13	17	..	49
Wyoming	..	..	..	..	..	..	..	..	..	..
Totals	1,092	169	234	86	1,491	800	237	357	97	1,491

TABLE 5.—*Arrangement of Services of Interns*

State	Rotating	Straight	Services Not Divided	Unanswered	Total
Alabama	9	3	..	..	12
Arizona	..	..	..	..	..
Arkansas	3	..	..	1	4
California	58	3	..	1	62
Colorado	14	3	..	..	17
Connecticut	24	4	..	1	29
Delaware	4	1	..	..	5
District of Columbia	13	4	..	1	18
Florida	7	1	..	..	8
Georgia	14	5	..	..	19
Idaho	..	1	..	..	1
Illinois	102	23	..	..	125
Indiana	33	4	..	..	37
Iowa	15	5	..	..	20
Kansas	10	2	..	..	12
Kentucky	10	6	..	1	17
Louisiana	10	5	..	..	15
Maine	6	1	..	..	7
Maryland	18	14	..	..	32
Massachusetts	44	20	6	1	71
Michigan	46	2	4	..	52
Minnesota	29	1	2	..	32
Mississippi	1	..	..	..	1
Missouri	39	8	6	..	53
Montana	..	..	..	..	..
Nebraska	8	..	1	1	10
Nevada	..	..	..	..	..
New Hampshire	1	..	..	..	1
New Jersey	68	3	3	1	75
New Mexico	..	..	..	..	..
New York	176	64	3	4	247
North Carolina	5	2	1	1	9
North Dakota	1	..	..	..	1
Ohio	69	7	..	2	78
Oklahoma	5	..	..	..	5
Oregon	13	..	..	..	13
Pennsylvania	161	11	1	1	174
Rhode Island	7	4	..	1	12
South Carolina	8	..	..	3	11
South Dakota	..	..	..	..	..
Tennessee	15	..	2	3	20
Texas	35	1	3	1	40
Utah	10	..	2	2	14
Vermont	7	..	..	..	7
Virginia	29	1	5	1	36
Washington	24	3	1	1	29
West Virginia	10	1	..	..	11
Wisconsin	34	6	8	1	49
Wyoming	..	..	..	..	..
Totals	1,195	219	48	29	1,491

surgical department 234 interns reported no experience in anesthesia, as compared with 1,002 who administered "a good many" anesthetics, and 169 "a few."

OBSTETRIC DEPARTMENT

In the department of obstetrics the majority of interns apparently received adequate experience. For the purpose of calling special attention to this service, the following figures are abstracted from the table:

Deliveries	Full Charge	Assisted in
Under 10	217	52
10-49	641	282
Over 50	234	317

An additional 499 interns reported assisting at deliveries but did not specify the exact number.

In contrast with these figures, it is surprising to note that 334 interns were not permitted to assume charge of any deliveries, and 235 did not even have the opportunity of assisting at deliveries. We have included in these totals reports sent us by interns on a straight service.

Figures indicating the number of anesthetics given by interns on the obstetric service are also included in the accompanying table.

TABLE 6.—*Writing of Histories*

State	For All Patients	For Some Patients	None	Unanswered	Total
Alabama	12	..	..	..	12
Arizona	..	..	..	..	..
Arkansas	3	1	..	..	4
California	62	..	..	..	62
Colorado	13	4	..	..	17
Connecticut	27	2	..	..	29
Delaware	5	..	..	..	5
District of Columbia	15	2	1	..	18
Florida	8	..	..	..	8
Georgia	17	..	2	..	19
Idaho	1	..	..	..	1
Illinois	124	..	..	1	125
Indiana	35	1	1	..	37
Iowa	20	..	..	..	20
Kansas	11	1	..	..	12
Kentucky	16	1	..	..	17
Louisiana	15	..	..	..	15
Maine	7	..	..	..	7
Maryland	27	4	..	1	32
Massachusetts	67	4	..	..	71
Michigan	52	..	..	..	52
Minnesota	32	..	..	..	32
Mississippi	..	1	..	..	1
Missouri	53	..	..	..	53
Montana	..	..	..	..	..
Nebraska	10	..	..	..	10
Nevada	..	..	..	..	..
New Hampshire	1	..	..	..	1
New Jersey	72	3	..	..	75
New Mexico	..	..	..	..	..
New York	233	12	1	1	247
North Carolina	8	1	..	..	9
North Dakota	1	..	..	..	1
Ohio	74	2	1	1	78
Oklahoma	5	..	..	..	5
Oregon	13	..	..	..	13
Pennsylvania	168	6	..	..	174
Rhode Island	7	5	..	..	12
South Carolina	11	..	..	..	11
South Dakota	..	..	..	..	..
Tennessee	15	5	..	..	20
Texas	35	2	3	..	40
Utah	14	..	..	..	14
Vermont	7	..	..	..	7
Virginia	36	..	..	..	36
Washington	27	1	1	..	29
West Virginia	10	1	..	..	11
Wisconsin	44	5	..	..	49
Wyoming	..	..	..	..	..
Totals	1,413	64	10	4	1,491

TYPE OF SERVICE

A continuation of the study of 1,491 reports received discloses that 1,195 interns obtained a rotating service; 219 a straight service; 48 stated that no definite form of service was provided, while 29 failed to answer the question. It will be noted at a glance, therefore, that the rotating type of intern service, because of its rather general acceptance, is conceded to have certain advantages over the straight service. Attention is called, however, to two outstanding exceptions, Maryland and Massachusetts. Eighteen interns reported a rotating service in hospitals in the former state as compared with 14 obtaining straight service; the tabulation for Massachusetts shows 44 interns receiving a rotating service, 20 a straight service. Noteworthy, also, are the figures for New York state, where the percentage is 71 for the rotating system and 26 for the straight, with seven hospitals left unclassified.

TABLE 7.—*Physical Examinations*

State	On All Ward Patients	On Some Ward Patients	None	Unanswered	On All Private Patients	On Some Private Patients	None	Unanswered
Alabama	12	..	..	..	3	2	3	4
Arizona	..	..	..	..	..	..	..	..
Arkansas	4	..	..	..	1	2	1	..
California	57	2	1	2	22	20	17	3
Colorado	13	2	..	2	6	3	6	2
Connecticut	29	..	..	..	16	11	2	..
Delaware	5	..	..	..	4	1	..	..
District of Columbia	17	..	1	..	6	8	3	1
Florida	8	..	..	..	1	4	1	2
Georgia	19	..	..	..	11	3	3	2
Idaho	1	..	..	..	1	..	..	..
Illinois	114	1	..	10	104	15	..	6
Indiana	31	1	..	5	27	9	1	..
Iowa	18	1	..	1	12	7	..	1
Kansas	10	2	..	..	9	3	..	..
Kentucky	16	1	..	..	4	8	2	3
Louisiana	14	1	..	..	10	1	3	1
Maine	7	..	..	..	2	3	1	1
Maryland	31	..	..	1	19	2	3	8
Massachusetts	69	..	..	2	14	25	29	3
Michigan	50	..	..	2	44	2	..	6
Minnesota	28	..	1	3	24	4	..	4
Mississippi	1	..	..	..	1	..	..	..
Missouri	52	1	..	..	31	5	1	16
Montana	..	..	..	..	..	..	..	..
Nebraska	9	1	..	..	7	2	..	1
Nevada	..	..	..	..	..	..	..	..
New Hampshire	1	..	..	..	..	1	..	..
New Jersey	75	..	..	..	40	19	11	5
New Mexico	..	..	..	..	..	..	..	..
New York	242	1	1	3	103	51	23	69
North Carolina	8	1	..	..	6	2	1	..
North Dakota	1	..	..	..	..	1	..	..
Ohio	78	..	..	..	54	11	7	6
Oklahoma	5	..	..	..	3	2	..	..
Oregon	12	..	..	1	9	2	..	2
Pennsylvania	174	..	..	..	121	38	6	9
Rhode Island	12	..	..	..	1	7	2	2
South Carolina	11	..	..	..	8	3	..	..
South Dakota	..	..	..	..	..	..	..	..
Tennessee	19	..	..	1	11	3	4	2
Texas	38	..	..	2	25	6	..	9
Utah	14	..	..	..	10	3	1	..
Vermont	7	..	..	..	7	..	..	..
Virginia	28	..	..	8	26	5	5	..
Washington	20	1	..	8	13	7	..	9
West Virginia	10	..	..	1	7	3	1	..
Wisconsin	45	1	..	3	42	4	1	2
Wyoming	..	..	..	..	..	..	..	..
Totals	1,415	17	4	55	865	308	148	170

HISTORIES

It would seem that the vast majority of the hospitals appreciate the value to the intern of history taking, since 1,413 interns were permitted to take histories of all patients on their service, thus illustrating the rather strict adherence, in this particular, to the Council's "Essentials." An additional 64 interns recorded some histories; 10 stated that no histories were required, and 4 failed to reply. While this total of 78 might seem negligible, yet it is particularly important that at this period of every young physician's training emphasis should be placed on the necessity of securing accurate and complete histories.

PHYSICAL EXAMINATIONS

Another duty devolving on the intern is the physical examination of patients in his service; and this does not

apply to ward patients alone since it is not at all uncommon for him to perform this service on private patients. We find 865 interns reporting physical examinations on all private patients in their services as compared with 1,415 who discharged this duty on ward patients; 308 interns stated that they were allowed to make the physical examinations on some private patients; however, about 11 per cent of the interns reporting failed to make any reference to private patients.

TABLE 8.—*Laboratory Work*

State	2 Mo. Laboratory Service	Emergency Only	All Cases on Own Service	Optional	None	Unanswered	Total
Alabama	..	4	3	..	5	..	12
Arizona	..	..	..	..	..	..	..
Arkansas	..	2	2	..	..	..	4
California	1	25	28	..	8	..	62
Colorado	..	12	4	..	1	..	17
Connecticut	8	10	8	..	3	..	29
Delaware	..	..	5	..	..	..	5
District of Columbia	..	3	10	..	5	..	18
Florida	..	5	3	..	..	..	8
Georgia	..	4	15	..	..	..	19
Idaho	..	..	1	..	..	..	1
Illinois	6	16	96	..	7	..	125
Indiana	..	6	31	..	..	..	37
Iowa	..	10	7	..	3	..	20
Kansas	..	2	10	..	..	..	12
Kentucky	..	6	10	..	1	..	17
Louisiana	1	1	9	4	..	..	15
Maine	..	..	7	..	..	..	7
Maryland	..	2	30	..	..	..	32
Massachusetts	..	12	54	..	4	1	71
Michigan	1	13	36	..	2	..	52
Minnesota	1	21	8	..	2	..	32
Mississippi	..	..	1	..	..	..	1
Missouri	..	12	37	..	4	..	53
Montana	..	..	..	..	..	..	..
Nebraska	..	..	8	..	2	..	10
Nevada	..	..	..	..	..	..	..
New Hampshire	..	..	..	..	1	..	1
New Jersey	10	9	49	..	6	1	75
New Mexico	..	..	..	..	..	..	..
New York	4	41	172	4	23	3	247
North Carolina	..	2	4	1	2	..	9
North Dakota	..	..	..	1	..	..	1
Ohio	..	22	46	3	7	..	78
Oklahoma	..	1	3	..	1	..	5
Oregon	..	7	3	..	3	..	13
Pennsylvania	52	6	111	1	3	1	174
Rhode Island	1	1	9	1	..	..	12
South Carolina	..	2	9	..	..	..	11
South Dakota	..	..	..	..	..	..	..
Tennessee	3	2	9	1	5	..	20
Texas	4	7	15	5	9	..	40
Utah	..	11	3	..	..	..	14
Vermont	..	..	7	..	..	..	7
Virginia	..	22	12	..	2	..	36
Washington	..	15	10	2	2	..	29
West Virginia	..	1	6	1	3	..	11
Wisconsin	..	18	23	3	5	..	49
Wyoming	..	..	..	..	..	..	..
Totals	92	333	914	27	119	6	1,491

LABORATORY AND X-RAY DEPARTMENTS

The intern schedule, according to the Council's "Essentials," should be so arranged as to furnish a modicum of instruction in the laboratory and x-ray departments. In this respect, the tabulation of statistics is a little disappointing, as 119 interns reported no laboratory service and 27 stated that the service was optional. Again, this total of 146 might seem negligible as compared with the 1,491 reports used as a basis for this study, but it is in this department that the intern should have the opportunity to "renew his acquaintance with routine examinations and gain instruction from the pathologist regarding the more technical procedures and tissue diagnoses." It is gratifying, however, to note that 914 interns received regular laboratory instruction on service, while 92 reported a two months' service. Less gratifying is the figure, 333, representing the interns who performed only emergency service in the laboratory department. In the x-ray department, it is significant to note that 1,005 interns reported no service, and 38 stated that the service was optional. On the other hand, 377 interns received x-ray instruction as part of their regular service; 57 reported emergency service only. Owing to lack of information, we were unable to classify the remaining fourteen reports.

PEDIATRICS

While no tabulation was made of interns' services in pediatrics, it is obvious from the reports sent in that a majority of the internships included training in pediatrics. In fact, those hospitals that are approved for interns are required to furnish instruction in pediatrics for all interns. This service may be obtained in the children's department of the hospital or in connection with the medical service in hospitals that have not a pediatric department. In hospitals that do not receive children as patients, the interns get their pediatric training through affiliation with a children's hospital. The importance of this service to interns is indicated by the proportion of child patients that must necessarily go to the average general practitioner.

The training of interns need not be the problem some hospitals are making it; with a little intelligent thought and cooperation each difficulty is surmountable.

TABLE 9.—*X-Ray Work*

State	Emergency Only	Assists with Own Cases	Optional	None	Unanswered	Total
Alabama	..	5	..	7	..	12
Arizona	..	..	..	..	..	..
Arkansas	..	1	..	3	..	4
California	..	15	..	47	..	62
Colorado	..	5	..	12	..	17
Connecticut	..	13	..	15	1	29
Delaware	..	4	..	1	..	5
Dist. of Columbia	..	1	..	16	1	18
Florida	..	2	..	6	..	8
Georgia	..	6	..	12	1	19
Idaho	..	1	..	..	..	1
Illinois	..	40	..	85	..	125
Indiana	..	15	..	22	..	37
Iowa	..	7	..	13	..	20
Kansas	..	1	..	11	..	12
Kentucky	..	4	..	13	..	17
Louisiana	..	2	..	13	..	15
Maine	..	2	..	5	..	7
Maryland	..	6	..	26	..	32
Massachusetts	9	9	2	50	1	71
Michigan	..	13	1	37	1	52
Minnesota	..	8	4	20	..	32
Mississippi	..	1	..	..	..	1
Missouri	7	18	..	28	..	53
Montana	..	..	..	..	..	..
Nebraska	..	4	..	6	..	10
Nevada	..	..	..	..	..	..
New Hampshire	..	1	..	..	..	1
New Jersey	..	18	..	55	2	75
New Mexico	..	..	..	..	..	..
New York	5	34	11	195	2	247
North Carolina	..	4	..	4	1	9
North Dakota	..	1	..	..	..	1
Ohio	2	10	2	64	..	78
Oklahoma	..	1	..	4	..	5
Oregon	6	2	1	4	..	13
Pennsylvania	12	79	5	75	3	174
Rhode Island	..	3	1	8	..	12
South Carolina	..	2	1	8	..	11
South Dakota	..	..	..	..	..	..
Tennessee	2	3	3	12	..	20
Texas	2	7	3	28	..	40
Utah	..	3	..	11	..	14
Vermont	..	1	..	6	..	7
Virginia	1	4	..	31	..	36
Washington	10	8	3	8	..	29
West Virginia	..	5	..	6	..	11
Wisconsin	1	8	1	38	1	49
Wyoming	..	..	..	..	..	..
Totals	57	377	38	1,005	14	1,491

It is the hope of the Council that when a subsequent survey of this kind is made the ex-interns will be practically unanimous in praise of their fifth year in medicine; we refer particularly, of course, to the internships served in approved hospitals.

HOSPITALS APPROVED FOR INTERNSHIPS

By the Council on Medical Education and Hospitals of the American Medical Association, 535 North Dearborn Street, Chicago

Revised to Aug. 5, 1930

The following general hospitals containing 193,557 beds are considered in position to furnish acceptable internships for medical graduates. For list of approved graduate medical schools send 10 cents; for list of hospitals providing approved residencies in certain specialties, send 15 cents.

HOSPITALS, 648. INTERNSHIPS, 5,496

Name of Hospital	Location	Number of Beds: Surgical	Medical	Obstetric	Pediatric	Other	Total	Affiliated—For What Service	Internships: Number	By Examination or Appointment	Length of Service in Months	Begin	Salary per Month	Dispensary Service
ALABAMA														
Hillman Hospital	Birmingham	yes	yes	yes	yes	yes	340	No	15	Ap.	12	July	No	Req.
Employees' Hospital of the Tennessee Coal, Iron and Railroad Co.	Fairfield	104	100	20	48	38	310	No	10	Ap.	12	July	$50	Req.
John A. Andrew Memorial Hospital [1] (col.)	Tuskegee Institute	25	30	10	10	..	75	No	3	Ap.	12	June & Sept.	$6	Req.
ARKANSAS														
Little Rock General Hospital	Little Rock	60	42	15	12	11	140	No	3	Ap.	12	July	$50	Req.
St. Vincent's Infirmary	Little Rock	yes	yes	yes	yes	yes	135	No	4	Ap.	12	June & July	$50	None
CALIFORNIA														
General Hospital of Fresno Co.	Fresno	68	68	30	35	159	360	No	8	Ap.	12	July	$25	Req.
Loma Linda Sanitarium and Hospital [1]	Loma Linda	yes	yes	yes	yes	yes	206	(88)	3	Ap.	12	July	$75	Req.
Seaside Hospital	Long Beach	70	35	40	5	28	178	No	1	Ap.	12	Aug. & Oct.	$50	Req.
California Hospital	Los Angeles	150	72	30	25	30	307	(3)	12	Ap.	12	July	$25	Req.
Hollywood Clara Barton Memorial Hosp. [1]	Los Angeles	yes	yes	60	yes	..	300	No	6	Ap.	12	July & Oct.	$50	Op.
Los Angeles County General Hosp., Unit 1 [1]	Los Angeles	270	493	115	25	497	1400	No	73	Ex.	12	*	$20	Op.
Methodist Hospital of Southern California	Los Angeles	100	50	50	15	10	225	No	6	Ap.	12	Jan. & July	$25	Req.
St. Vincent's Hospital	Los Angeles	yes	yes	yes	yes	..	265	No	3	Ap.	12	July	$50	None
Santa Fe Coast Lines Hospital	Los Angeles	70	70	..	..	10	150	(90)	5	Ap.	12	(1-k)	$25	Req.
White Memorial Hospital [1]	Los Angeles	yes	yes	21	10	..	137	(3)	10	Ap.	12	July	$20(d)	Req.
U. S. Naval Hospital	Mare Island	114	202	..	..	184	500	(4)	10	Ex.	12	July	(b)	None
Paradise Valley Sanitarium and Hospital [1]	National City	yes	yes	yes	yes	yes	127	No	2	Ap.	12	July	$75	Req.
Alameda County Hospitals [1]	Oakland	yes	yes	yes	yes	yes	940	(5)	25	Ap.	12	July	$25	None
Fabiola Hospital [1]	Oakland	85	30	100	yes	24	239	No	2	Ap.	12	July	(c)	....
Samuel Merritt Hospital	Oakland	yes	yes	yes	yes	yes	160	No	2	Ap.	12	Jan. & July	$25	Req.
Orange County Hospital [1]	Orange	20	67	12	30	133	262	No	2	Ap.	12	July	$20	Req.
Pasadena Hospital	Pasadena	78	82	30	10	44	244	(98)	2	Ap.	12	July	$35	Req.
Sacramento Hospital [1]	Sacramento	60	180	28	30	118	416	No	10	Ap.	12	July	$50	Req.
San Bernardino General Hospital [1]	San Bernardino	50	127	15	12	93	297	No	4	Ap.	12	July	$50	Req.
San Diego County General Hospital	San Diego	110	156	40	50	180	536	No	14	Ap.	12	July	(e)	Req.
U. S. Naval Hospital	San Diego	240	240	..	..	540	1020	(6)	10	Ex.	12	July	(b)	Req.
French Hospital [1]	San Francisco	115	75	10	15	10	225	No	6	Ap.	12	July	$40	Req.
Hospital for Children [2]	San Francisco	yes	yes	yes	yes	yes	329	No	8	Ap.	12	July	$10	....
Letterman General Hospital	San Francisco	392	374	10	yes	219	995	No	14	Ap.	12	Aug.	(b)	Req.
Mary's Help Hospital	San Francisco	yes	yes	yes	yes	yes	150	No	4	Ap.	12	July	$25	Req.
Mount Zion Hospital	San Francisco	51	57	25	15	22	170	No	3	Ap.	12	June	$25	Req.
St. Joseph's Hospital [1]	San Francisco	60	75	35	20	20	210	No	4	Ap.	12	July	$30	Op.
St Luke's Hospital [1]	San Francisco	yes	yes	yes	yes	yes	203	No	6	Ap.	12	July	$15(f)	Req.
St. Mary's Hospital	San Francisco	yes	yes	40	25	..	365	No	5	Ap.	12	July	$30	Req.
San Francisco Hospital [1]	San Francisco	yes	yes	yes	yes	yes	1068	No	37	Ap.	12	June & July	$10	Op.
Southern Pacific General Hospital	San Francisco	150	150	..	..	..	300	(7)	10	Ap.	12	July	$30	Req.
Stanford University Hospitals (including Lane Hospital) [1]	San Francisco	38	42	43	38	145	306	No	12	Ap.	12	July	$10	Req.
U. S. Marine Hospital No. 19	San Francisco	154	177	..	..	..	331	(92)	6	Ap.	12	July	(b)	Req.
University of California Hospital [1]	San Francisco	82	54	54	68	25	283	No	18	Ap.	12	June	$10	Req.
Santa Clara County Hospital	San Jose	yes	yes	yes	yes	yes	490	No	6	Ap.	12	July	$50	Req.
St. Francis Hospital [1]	Santa Barbara	35	30	15	5	15	100	No	2	Ap.	12	July	$25	Req.
Santa Barbara Cottage Hospital [1]	Santa Barbara	30	101	36	9	..	176	No	3	Ap.	12	July	$20	Req.
Santa Barbara General Hospital [1]	Santa Barbara	26	52	8	15	75	175	(89)	1	Ap.	12	.....	$20	None
COLORADO														
Boulder Colorado Sanitarium [1]	Boulder	yes	yes	yes	yes	yes	107	No	1	Ap.	12	June	$25	Op.
Beth-El General Hospital	Colorado Springs	35	46	19	..	79	179	No	2	Ap.	12	July	$25	Req.
Glockner Sanatorium and Hospital	Colorado Springs	42	187	13	8	..	250	No	2	Ap.	12	July	$25	Req.
St. Francis Hospital [1]	Colorado Springs	yes	yes	yes	yes	yes	200	No	1	Ap.	12	July	$50	None
Colorado General Hospital [1]	Denver	50	50	25	25	26	176	No	9	Ap.	12	July & Sept.	$25	Req.
Denver General Hospital	Denver	92	68	47	50	226	483	No	9	Ap.	18	Jan. & July	$30	None
Fitzsimons General Hospital	Denver	197	1291	15	..	233	1736	(8)	9	Ap.	12	Aug.	(b)	Req.
Mercy Hospital	Denver	96	61	18	..	..	175	(97)	4	Ap.	12	July	$25	None
Presbyterian Hospital [1]	Denver	yes	yes	yes	yes	yes	170	No	3	Ap.	12	July	$25	None
St. Anthony Hospital	Denver	85	70	20	..	..	175	No	3	Ap.	12	June & July	$25	None
St. Joseph's Hospital	Denver	yes	yes	yes	yes	yes	225	No	4	Ap.	12	July	$25	None
St. Luke's Hospital	Denver	60	40	26	30	55	211	No	8	Ap.	12	June	$15	None
CONNECTICUT														
Bridgeport Hospital	Bridgeport	68	40	110	30	137	385	No	6	Ap.	12	July	No	None
St. Vincent's Hospital	Bridgeport	134	30	40	32	..	236	(91)	4	Ap.	12	July	$25	....
Danbury Hospital	Danbury	48	26	24	9	21	128	No	1	Ap.	12	July	$25	None
Hartford Hospital	Hartford	yes	yes	yes	yes	yes	650	No	11	Ap.	22	**	No	None
Municipal Hospital	Hartford	30	30	4	10	71	145	No	2	Ap.	12	July	$50	Op.
St. Francis Hospital	Hartford	240	100	110	30	..	480	(9)	10	Ap.	24	July	No	Req.
Meriden Hospital	Meriden	37	36	21	18	18	130	No	3	Ap.	12	Varies	$25	....
Middlesex Hospital	Middletown	42	40	50	18	..	150	No	2	Ap.	12	July	$35(g)	....
New Britain General Hospital	New Britain	111	26	81	20	..	238	No	4	Ap.	12	July & Aug.	No	None
Grace Hospital	New Haven	37	34	40	28	105	244	No	6	Ap.	12	July	$25	Req.
Hospital of St. Raphael	New Haven	120	50	30	40	..	240	No	4	Ap.	12	July	$25	None
New Haven Hospital [1]	New Haven	131	101	52	66	60	410	No	24	Ap.	12-16	***	No	Req.
Stamford Hospital [1]	Stamford	100	74	50	25	18	267	No	4	Ap.	12	July	$25	Req.
St. Mary's Hospital	Waterbury	68	50	41	20	41	220	No	3	Ap.	12	July	$25	....
Waterbury Hospital	Waterbury	92	47	32	38	101	310	No	5	Ap.	12	July	$25	Req.
DELAWARE														
Delaware Hospital	Wilmington	yes	yes	yes	yes	yes	200	No	4	Ap.	12	July	$50	Req.
DISTRICT OF COLUMBIA														
Central Disp. and Emergency Hospital [1]	Washington	85	40	..	12	63	200	No	13	Ap.	12	July	$10	Req.
Freedmen's Hospital [1] (col.)	Washington	55	55	24	16	111	261	No	25	Ex.	12	July & Oct.	No	Req.
Gallinger Municipal Hospital [1]	Washington	yes	yes	yes	yes	yes	700	No	10	Ap.	12	July	$30	Req.
Garfield Memorial Hospital [1]	Washington	106	87	40	..	87	320	No	10	Ap.	12	July	$10(h)	Req.
Georgetown University Hospital	Washington	160	45	70	16	..	291	No	7	Ex.	12	July	$10	Req.
George Washington University Hospital [1]	Washington	yes	yes	yes	yes	yes	1108	No	5	Ap.	12	July	$15	Req.
Saint Elizabeth Hosp. [1] (Med. & Surg. Dept.)	Washington	50	160	..	..	85	295	(10)	3	Ex.	15	Jan. & July	(b)	Req.
Sibley Memorial Hospital	Washington	yes	yes	70	12	100	312	No	4	Ap.	12	July	$25-$50	None
U. S. Naval Hospital	Washington	49	304	..	..	131	484	(11)	5	Ap.	12	July	(b)	Req.
Walter Reed General Hospital	Washington	580	500	20	..	..	1100	No	16	Ap.	12	Aug.	(b)	None
Washington Sanitarium and Hospital, [1] Takoma Park	Washington	50	115	9	10	..	184	No	1	Ap.	12	July	$100	Op.

Numerical and other references will be found on page 524.

Name of Hospital	Location	Number of Beds: Surgical	Medical	Obstetric	Pediatric	Other	Total	Affiliated—For What Service	Internships: Number	By Examination or Appointment	Length of Service in Months	Begin	Salary per Month	Dispensary Service
FLORIDA														
Duval County Hospital	Jacksonville	yes	yes	yes	yes	yes	185	No	6	Ap.	12	July	$30	Req.
St. Luke's Hospital	Jacksonville	yes	yes	22	45	..	175	No	3	Ap.	12	July	$50	Req.
St. Vincent's Hospital	Jacksonville	yes	yes	yes	yes	yes	240	No	2	Ap.	12	July	$40	None
James M. Jackson Memorial Hospital	Miami	yes	yes	yes	yes	yes	325	No	5	Ap.	12	.....	$25	....
Tampa Municipal Hospital	Tampa	yes	yes	yes	yes	yes	225	No	6	Ap.	12	July	$25	None
GEORGIA														
Georgia Baptist Hospital	Atlanta	100	20	20	10	..	150	No	5	Ap.	12	July	$50	....
Grady Memorial Hospital	Atlanta	yes	yes	yes	yes	yes	580	No	12	Ap.	12	July	$15	Req.
Grady Memorial Hospital (col. unit)	Atlanta	77	55	29	36	66	263	No	12	Ap.	12	July	$15	Req.
Piedmont Hospital	Atlanta	83	15	22	10	..	130	No	4	Ap.	12	July	$50	Op.
University Hospital	Augusta	99	99	22	18	23	261	No	8	Ap.	12	July	No	Req.
Wesley Memorial Hospital	Emory University	yes	yes	yes	yes	yes	219	No	6	Ap.	12	July	$35	Req.
Macon Hospital	Macon	60	40	20	25	20	145	(12)	5	Ap.	12	July	$40(g)	Req.
ILLINOIS														
Albert Merritt Billings Memorial Hospital [1]	Chicago	yes	yes	yes	yes	yes	166	No	14	Ap.	12	Jan. & July	No	....
Alexian Bros. Hosp. (male patients only)	Chicago	140	80	..	10	55	285	(13)	7	Ap.	12	July	$50	Req.
Augustana Hospital	Chicago	yes	yes	yes	yes	yes	405	No	15	Ap.	18-21	Jan. & July	No	None
Chicago Memorial Hospital [1]	Chicago	28	28	17	15	17	105	No	4	Ap.	12	Jan. & July	$25(a)	None
Columbus Hospital	Chicago	70	43	20	16	1	150	No	5	Ap.	12	June	$25	Req.
Cook County Hospital [1]	Chicago	650	750	200	500	1200	3300	No	101	Ex.	18	Jan. & July	No	None
Edgewater Hospital	Chicago	60	25	25	10	20	140	No	5	Ap.	12	Jan.	$50	Req.
Englewood Hospital	Chicago	yes	yes	yes	yes	yes	150	No	4	Ap.	12	July	No	Op.
Evangelical Hospital of Chicago [1]	Chicago	110	20	60	10	60	260	No	6	Ap.	12	July	$25(i)	None
Frances E. Willard Hospital [1]	Chicago	yes	yes	yes	yes	yes	245	No	6	Ap.	12	July	No	Op.
Garfield Park Hospital [1]	Chicago	90	44	30	6	78	248	No	7	Ap.	12-18	Sept.	No	Req.
Grant Hospital	Chicago	150	50	50	20	50	320	No	8	Ap.	12	July	No	Req.
Hospital of St. Anthony de Padua	Chicago	126	40	39	15	..	220	No	6	Ap.	18	†	$10	None
Illinois Central Hospital	Chicago	yes	yes	yes	yes	yes	300	No	10	Ap.	18	†	$25	Req.
Lutheran Deaconess Home and Hospital	Chicago	yes	yes	41	6	..	218	No	7	Ap.	12	May & July	$25	....
Lutheran Memorial Hospital	Chicago	84	45	31	..	..	160	No	4	Ap.	12	July	$25	Req.
Mercy Hospital	Chicago	yes	yes	yes	yes	yes	430	No	19	Ap.	18	Jan. & July	No	Op.
Michael Reese Hospital [1]	Chicago	yes	yes	yes	yes	yes	607	(14)	33	Ap.	12-24	Jan. & July	No	Req.
Mother Cabrini Memorial Hospital	Chicago	80	31	31	12	14	168	No	3	Ap.	12	July	No	None
Mount Sinai Hospital [1]	Chicago	50	40	44	20	89	243	No	8	Ex.	12	July	$25	Op.
Norwegian-American Hospital	Chicago	70	30	50	10	50	210	No	6	Ap.	12	†	(e)	Req.
Passavant Memorial Hospital	Chicago	yes	yes	yes	yes	yes	262	No	8	Ap.	12	July	No	Op.
Presbyterian Hospital [1]	Chicago	175	175	25	50	..	425	No	28	Ap.	16	Varies	No	Req.
Provident Hospital (col.)	Chicago	yes	yes	yes	yes	..	65	No	4	Ap.	12	††	No	Req.
Ravenswood Hospital [1]	Chicago	yes	yes	yes	yes	yes	190	No	5	Ap.	12	†††	$25	Req.
Research and Educational Hospital of University of Illinois [1]	Chicago	46	38	26	14	51	175	No	9	Both	12	July	No	Op.
Roseland Community Hospital	Chicago	40	28	27	6	27	128	No	4	Ap.	12	July	$50	Req.
St. Anne's Hospital [1]	Chicago	yes	yes	yes	yes	yes	352	No	6	Ap.	12	Jan. & July	$25	None
St. Bernard's Hospital	Chicago	99	30	50	15	15	200	No	8	Ex.	12	Mar. & July	No	Req.
St. Elizabeth's Hospital	Chicago	98	98	34	15	34	279	No	6	Ap.	12	July	$25	Req.
St. Joseph's Hospital	Chicago	58	58	39	45	..	200	No	8	Ap.	12	July	No	None
St. Luke's Hospital	Chicago	yes	yes	yes	yes	yes	643	No	39	Ex.	24	July	No	Req.
St. Mary of Nazareth Hospital	Chicago	144	40	38	28	..	250	No	8	Ap.	12	Jan. & July	No	None
Swedish Covenant Hospital	Chicago	50	40	35	35	75	235	No	6	Ap.	12	Mar. & Oct.	$30	None
U. S. Marine Hospital	Chicago	60	60	..	..	30	150	(15)	2	Ap.	12	July	(b)	Req.
University Hospital	Chicago	60	17	26	6	1	110	No	3	Ap.	12	July	$15	Op.
Washington Boulevard Hospital	Chicago	yes	yes	yes	yes	yes	110	No	6	Ap.	18	†	No	Req.
Washington Park Community Hospital	Chicago	yes	yes	yes	yes	yes	140	No	4	Ap.	12	July	$25	None
Wesley Memorial Hospital	Chicago	135	90	25	25	..	275	No	17	Ap.	24	†	No	Req.
West Side Hospital	Chicago	yes	yes	yes	yes	yes	169	No	8	Ap.	12	†	No	Req.
Decatur and Macon County Hospital [1]	Decatur	yes	yes	23	15	..	155	No	3	Ap.	12	July	$25	Op.
St. Mary's Hospital	East St. Louis	yes	yes	36	25	39	290	No	5	Ap.	12	July	$25-$60	Op.
Evanston Hospital	Evanston	95	72	38	38	37	280	No	8	Ap.	12	†	No	Req.
St. Francis Hospital	Evanston	100	75	40	35	..	250	No	7	Ap.	12	#	$25	Req.
U. S. Naval Hospital	Great Lakes	yes	yes	..	..	yes	975	(100)	8	Both	12	July	(b)	....
St. Joseph's Hospital	Joliet	85	60	40	8	..	193	No	2	Ap.	12	July	$50	None
Oak Park Hospital	Oak Park	50	35	35	55	..	175	No	5	Ap.	12	July	$10	None
West Suburban Hospital	Oak Park	166	39	103	19	100	427	No	12	Ap.	12	##	No	Req.
Rockford Hospital	Rockford	yes	yes	18	9	yes	110	No	2	Ap.	12	.....	$50	None
St. Anthony's Hospital	Rock Island	70	30	20	10	42	172	No	1	Ap.	12	Sept.	(p)	Op.
INDIANA														
St. Catherine's Hospital	East Chicago	yes	yes	yes	yes	yes	404	No	4	Ap.	12	July	Open	None
Fort Wayne Lutheran Hospital	Fort Wayne	yes	yes	24	10	30	190	No	2	Ap.	12	July	$25	Req.
Methodist Episcopal Hospital	Fort Wayne	71	35	16	10	..	132	No	3	Ap.	12	June & Sept.	$50	Req.
St. Joseph's Hospital	Fort Wayne	yes	yes	yes	yes	yes	395	No	5	Ap.	12	July	$25(j)	Op.
St. Mary's Mercy Hospital	Gary	yes	yes	yes	yes	yes	250	(16)	6	Ap.	12	Jan. & July	$25(a)	None
St. Margaret's Hospital	Hammond	125	50	35	20	20	270	No	6	Ap.	12	###	$30	Req.
Hospitals of Indiana University [1]	Indianapolis	yes	yes	yes	yes	yes	420	(17)	15	Ap.	12	June	$12.50	Req.
Indianapolis City Hospital	Indianapolis	128	109	96	60	142	535	No	26	Ap.	12	July	$12	Req.
Methodist Episcopal Hospital	Indianapolis	yes	yes	yes	yes	yes	376	No	12	Ap.	12	July	$25	None
St. Vincent's Hospital	Indianapolis	135	20	35	15	95	300	No	8	Ap.	12	July	$25	None
St. Elizabeth's Hospital	Lafayette	114	58	20	18	20	230	No	4	Ap.	12	July	$50	None
Epworth Hospital	South Bend	37	25	62	25	38	187	No	3	Ap.	12	Jan. & July	$50	Req.
St. Joseph Hospital	South Bend	yes	yes	yes	yes	yes	149	No	2	Ap.	12	July	$50	Req.
St. Anthony's Hospital	Terre Haute	yes	yes	yes	yes	yes	176	No	2	Ap.	12	July	$50	None
IOWA														
St. Luke's Methodist Hospital [1]	Cedar Rapids	98	35	20	10	12	175	No	1	Ap.	12	July	$25	Req.
Jennie Edmundson Memorial Hospital	Council Bluffs	yes	yes	yes	yes	yes	125	No	2	Ap.	12	July	$50	Op.
Mercy Hospital	Council Bluffs	38	29	21	12	42	142	No	2	Ap.	12	June	$40	Op.
Mercy Hospital	Davenport	45	40	16	5	25	131	No	2	Ap.	12	July	$30	Req.
Broadlawns-Polk County Public Hospital	Des Moines	40	29	10	11	150	240	No	5	Ap.	12	July	$45	Req.
Iowa Lutheran Hospital	Des Moines	80	53	76	17	..	226	No	5	Ap.	12	Jan. & July	$25	Op.
Iowa Methodist Hospital	Des Moines	yes	yes	yes	yes	yes	239	No	6	Ap.	12	July	$25	Req.
Mercy Hospital	Des Moines	yes	yes	yes	yes	yes	171	No	3	Ap.	12	July	$50	None
University Hospitals [1]	Iowa City	yes	yes	yes	yes	yes	954	No	46	Ap.	24	July	(y)	Req.
St. Joseph Mercy Hospital [1]	Sioux City	yes	yes	yes	yes	yes	200	No	2	Ap.	12	July	$25	Op.
KANSAS														
Bell Memorial Hospital	Kansas City	yes	yes	yes	yes	yes	165	No	7	Ap.	12	July	$25	Req.
Bethany Methodist Hospital [1]	Kansas City	yes	yes	yes	yes	yes	145	No	2	Ap.	12	July	$50	Op.
St. Margaret's Hospital	Kansas City	126	149	..	15	15	305	(18)	7	Ap.	12	July	$25	Req.
St. Francis Hospital	Wichita	80	80	25	30	35	250	No	5	Ap.	12	July	$50	Req.
Wesley Hospital	Wichita	102	36	24	28	77	267	No	5	Ap.	12	July	$50(g)	Req.
KENTUCKY														
St. Elizabeth Hospital	Covington	92	116	66	24	77	375	No	4	Ap.	12	July	$50	None
Good Samaritan Hospital [1]	Lexington	60	57	15	20	6	158	Yes	2	Ap.	12	July	$25	None
St. Joseph's Hospital	Lexington	yes	yes	yes	yes	yes	202	No	2	Ap.	12	July	$35(g)	Req.
Louisville City Hospital	Louisville	160	120	60	40	134	514	No	19	Ap.	12	July	$10	Req.
St. Anthony's Hospital	Louisville	yes	yes	yes	yes	yes	150	No	2	Ap.	12	July	$50	None
St. Joseph Infirmary	Louisville	122	28	28	25	47	250	No	2	Ap.	12	July	$50	None
SS Mary and Elizabeth Hospital	Louisville	65	40	15	10	15	145	No	2	Ap.	12	July	$40	None

Numerical and other references will be found on page 524.

Name of Hospital	Location	Number of Beds: Surgical	Medical	Obstetric	Pediatric	Other	Total	Affiliated—For What Service	Internships: Number	By Examination or Appointment	Length of Service in Months	Begin	Salary per Month	Dispensary Service
LOUISIANA														
Charity Hospital [1]	New Orleans	yes	yes	yes	yes	yes	1725	No	56	Ap.	12	July	No	Req.
Flint-Goodridge Hospital (col.)	New Orleans	26	14	6	8	4	58	No	2	Ap.	12	Sept.	$10-$25	None
Hotel Dieu [1]	New Orleans	150	50	35	15	28	278	No	5	Ap.	12	July	$50	None
Southern Baptist Hospital	New Orleans	yes	yes	yes	yes	yes	322	No	7	Ap.	12	July	$20	Op.
Touro Infirmary [1]	New Orleans	yes	yes	yes	yes	yes	410	No	20	Ap.	12	July	$20	Req.
U. S. Marine Hospital	New Orleans	139	166	..	..	145	450	(19)	15	Ap.	12	July	(b)	Req.
T. E. Schumpert Sanitarium	Shreveport	yes	yes	yes	yes	yes	160	No	2	Ap.	12	July	$ 0	Req.
Shreveport Charity Hospital	Shreveport	80	80	30	20	40	250	No	10	Ap.	12	July	$10	Op.
MAINE														
Eastern Maine General Hospital	Bangor	yes	yes	yes	yes	yes	158	No	3	Ap.	12	July	(c)	None
Central Maine General Hospital	Lewiston	yes	yes	yes	yes	yes	137	No	2	Ap.	12	July	$25	Req.
St. Mary's General Hospital	Lewiston	yes	yes	yes	yes	yes	150	No	1	Ap.	12	July	$75	....
Maine General Hospital [1]	Portland	80	51	24	30	27	212	No	6	Ap.	12	July	No	Op.
MARYLAND														
Baltimore City Hospitals	Baltimore	199	335	8	..	502	1044	(23)	14	Ap.	12	July	$25	Req.
Church Home and Infirmary	Baltimore	yes	yes	yes	yes	yes	176	No	6	Ap.	12	July	No	Req.
Franklin Square Hospital [1]	Baltimore	yes	yes	yes	yes	yes	115	No	3	Ap.	12	July	No	Req.
Hospital for Women of Maryland [1]	Baltimore	yes	yes	yes	..	..	133	(21)	5	Ap.	12	July	$15	None
Johns Hopkins Hospital [1]	Baltimore	yes	yes	yes	yes	yes	818	No	49	Ap.	12	Sept.	No	....
Maryland General Hospital	Baltimore	yes	yes	25	yes	yes	240	No	9	Ap.	12	July	$10	Req.
Mercy Hospital	Baltimore	140	50	58	32	..	280	No	11	Ap.	12	July	No	None
Provident Hospital and Free Disp. (col.)	Baltimore	yes	yes	yes	yes	yes	134	No	7	Ap.	12	Oct.	No	None
St. Agnes' Hospital	Baltimore	100	54	18	22	18	212	No	6	Ap.	12	July	No	Req.
St. Joseph's Hospital	Baltimore	149	37	25	29	25	265	No	5	Ap.	12	July	No	Req.
Sinai Hospital of Baltimore [1]	Baltimore	81	82	35	28	45	271	No	20	Ap.	12	July	No	Req.
South Baltimore General Hospital	Baltimore	57	22	9	13	9	110	No	5	Ap.	12	July	$10	Req.
Union Memorial Hospital	Baltimore	yes	yes	..	59	..	229	No	12	Ap.	12	July	No	Req.
U. S. Marine Hospital No. 1	Baltimore	69	83	..	..	69	221	(22)	3	Ex.	12	July	(b)	Req.
University of Maryland Hospital [1]	Baltimore	70	70	20	30	60	250	No	13	Ap.	12	July	No	Req.
West Baltimore General Hospital	Baltimore	80	50	20	15	20	185	No	3	Ap.	12	July	$25	Req.
MASSACHUSETTS														
Beverly Hospital	Beverly	yes	yes	yes	yes	yes	115	No	1	Ap.	14	July	$25	Req.
Beth Israel Hospital	Boston	79	67	..	21	23	190	No	10	Ex.	20	Mar. & July	No	Req.
Boston City Hospital	Boston	yes	yes	yes	yes	yes	1760	(23)	77	Ex.	12-20	Varies	No	Req.
Carney Hospital	Boston	104	64	22	28	32	250	No	14	Ap.	16-20	¶	No	Req.
Long Island Hospital [1]	Boston	81	154	25	100	225	585	No	6	Ap.	12	July	$ 0	Req.
Massachusetts General Hospital [1]	Boston	yes	yes	yes	yes	yes	411	No	36	Both	19-22	†	No	Req.
Massachusetts Memorial Hospitals [1]	Boston	yes	yes	92	yes	166	621	No	13	Ap.	12	Aug.	No	Req.
New England Hospital for Women and Children [2]	Roxbury Boston	yes	yes	yes	yes	yes	315	No	6	Ap.	12	July	No	Req.
Peter Bent Brigham Hospital	Boston	123	123	..	..	..	246	No	25	Ex.	16½	Varies	No	Req.
St. Elizabeth's Hospital, Brighton	Boston	155	40	60	25	20	300	No	8	Ex.	21	†	No	Req.
Brockton Hospital	Brockton	yes	yes	yes	yes	yes	162	No	3	Ex.	12	Aug.	$25	Req.
Cambridge Hospital	Cambridge	yes	yes	..	yes	yes	320	(60)	3	Ap.	12	May & Nov.	No	Req.
U. S. Naval Hospital	Chelsea	yes	yes	..	..	..	614	(24)	8	Ap.	12	Varies	(b)	None
Fall River General Hospital	Fall River	40	52	47	23	150	312	No	3	Ap.	12	¶¶	$41	Req.
Union Hospital	Fall River	yes	yes	yes	yes	yes	176	No	2	Ap.	12	July	(k)	Req.
Burbank Hospital [1]	Fitchburg	yes	yes	22	25	51	210	No	2	Ap.	12	July	$25	Req.
Providence Hospital	Holyoke	yes	yes	yes	yes	yes	140	No	2	Ap.	12	June	$25	None
Lawrence General Hospital	Lawrence	34	14	40	25	37	150	No	2	Ap.	12	June	$10	Req.
Lowell General Hospital [1]	Lowell	44	22	30	14	50	160§	No	1	Ex.	12	July	$25	Req.
St. John's Hospital	Lowell	yes	yes	yes	yes	yes	148	No	3	Ap.	12	June	No	Op.
Lynn Hospital	Lynn	43	34	46	31	46	203	No	3	Ex.	12	June & July	(l)	Req.
St. Luke's Hospital	New Bedford	60	20	90	65	95	330	No	4	Ap.	12	July	No	Req.
Newton Hospital	Newton	43	29	30	11	127	240	No	2	Ex.	12	July	No	Req.
House of Mercy Hospital [1]	Pittsfield	50	56	23	32	25	189	No	2	Ap.	12	July	$50	Op.
Salem Hospital	Salem	74	19	27	30	..	150	No	2	Ex.	12	June	$25	Req.
Mercy Hospital	Springfield	90	50	40	25	195	400	No	2	Ap.	12	June	$25	None
Springfield Hospital	Springfield	yes	yes	yes	yes	yes	188	No	4	Ap.	12	June	No	Req.
Waltham Hospital	Waltham	yes	yes	20	10	50	202	No	3	Ap.	12	Varies	No	Req.
Memorial Hospital [2]	Worcester	62	44	60	yes	49	215	No	8	Ap.	12	July & Sept.	No	Req.
St. Vincent Hospital	Worcester	yes	yes	yes	yes	yes	250	No	3	Ap.	12	July	$50	None
Worcester City Hospital	Worcester	114	100	34	72	50	370	No	16	Ap.	24	¶¶¶	No	Req.
MICHIGAN														
St. Joseph's Mercy Hospital	Ann Arbor	yes	yes	yes	yes	yes	200	No	3	Ap.	12	July	$25	Req.
University Hospital [1]	Ann Arbor	yes	yes	yes	yes	yes	1223	(25)	35	Ap.	12	July	No	Req.
Mercy Hospital	Bay City	40	40	20	40	35	175	No	3	Ex.	12-18	July	$50	Req.
City of Detroit Receiving Hospital	Detroit	253	131	..	33	283	700	(26)	26	Ap.	12	July	$25	None
Evangelical Deaconess Hospital	Detroit	yes	yes	yes	yes	yes	135	No	2	Ap.	12	July	$25	Req.
Grace Hospital [1]	Detroit	114	94	36	71	82	397	(27)	24	Ap.	12	(1-a)	$25	Req.
Harper Hospital	Detroit	350	200	100	..	..	650	(28)	40	Ap.	12	July	No	Op.
Henry Ford Hospital	Detroit	238	125	48	68	48	527	No	23	Both	12	Sept.	$125	(d) None
Providence Hospital	Detroit	156	75	82	35	102	450	(29)	16	Ap.	12	July	$25	None
St. Joseph Mercy Hospital	Detroit	yes	yes	yes	yes	yes	205	No	6	Ap.	12	July	$25	Req.
St. Mary's Hospital	Detroit	145	120	60	25	..	350	(30)	13	Ap.	12	July	$25	Req.
Hurley Hospital [1]	Flint	120	104	100	32	44	400	No	9	Ap.	12	July	$25	Req.
Blodgett Memorial Hospital [1]	Grand Rapids	yes	yes	yes	yes	yes	150	No	6	Ap.	12	July	No	Req.
Butterworth Hospital	Grand Rapids	85	42	52	26	65	270	No	7	Ap.	12	July	$10	Req.
St. Mary's Hospital	Grand Rapids	109	47	35	50	..	241	No	6	Ap.	12	July	$25	Req.
Highland Park General Hospital	Highland Park	yes	yes	yes	yes	yes	190	No	8	Ap.	12	Jan. & July	$ 0	Req.
W. A. Foote Memorial Hospital	Jackson	yes	yes	yes	yes	yes	129	No	2	Ap.	12	July	$50	Req.
Edward W. Sparrow Hospital [1]	Lansing	yes	yes	24	20	..	145	No	2	Ap.	12	July	$60	Req.
St. Lawrence Hospital	Lansing	30	30	29	11	28	128	No	2	Ap.	12	July & Sept.	$60	Req.
Hackley Hospital [1]	Muskegon	31	31	32	15	6	115	(31)	2	Ap.	12	July	$ 0	Req.
Mercy Hospital [1]	Muskegon	35	25	20	20	10	110	(31)	2	Ap.	12	July	$50	Req.
Saginaw General Hospital	Saginaw	53	42	25	31	..	151	No	3	Ap.	12	July	$50	Req.
St. Mary's Hospital	Saginaw	98	20	20	18	20	176	No	2	Ap.	12	July	$50	None
MINNESOTA														
St. Luke's Hospital	Duluth	yes	yes	yes	yes	yes	270	No	7	Ap.	12	Apr. & July	$25	Op.
St. Mary's Hospital	Duluth	120	62	34	25	44	285	No	8	Ap.	12	Jan. & Apr.	$25	Req.
Abbott Hospital	Minneapolis	yes	yes	14	60	2	122	No	3	Ap.	12	Varies	$50	Req.
Asbury Hospital	Minneapolis	67	50	25	25	..	167	(32)	3	Ap.	12	(1-b)	$25	None
Eitel Hospital	Minneapolis	50	35	30	15	..	130	No	3	Ap.	12	July	$25	None
Fairview Hospital	Minneapolis	95	30	27	10	65	227	No	4	Ap.	12	(1-c)	$25	Req.
Lutheran Deaconess Home and Hospital	Minneapolis	yes	yes	yes	yes	yes	150	No	3	Ap.	12	Varies	$25	None
Minneapolis General Hospital [1]	Minneapolis	136	123	40	62	276	637	No	24	Ap.	12	Jan. & July	No	Req.
Northwestern Hospital	Minneapolis	yes	yes	yes	yes	yes	200	No	5	Ap.	12	Jan. & June	$25	None
St. Barnabas Hospital [1]	Minneapolis	70	35	46	15	..	166	No	2	Ap.	12	July	$25	None
St. Mary's Hospital	Minneapolis	102	55	37	26	120	340	No	6	Ap.	12	July	$25	Op.
Swedish Hospital	Minneapolis	yes	yes	yes	yes	yes	322	No	6	Ap.	12	Jan. & June	$50	None
University Hospital [1]	Minneapolis	yes	yes	yes	yes	yes	400	(33)	12	Ap.	12	(1-d)	No	None

Numerical and other references will be found on page 524.

Name of Hospital	Location	Number of Beds						Affiliated—For What Service	Internships					
		Surgical	Medical	Obstetric	Pediatric	Other	Total		Number	By Examination or Appointment	Length of Service in Months	Begin	Salary per Month	Dispensary Service
Ancker Hospital	St. Paul	230	200	55	100	445	1000	No	24	Ap.	12	July	No	Req.
Bethesda Hospital [1]	St. Paul	yes	yes	28	10	..	110	No	1	Ap.	12	June	$25	None
Charles T. Miller Hospital [1]	St. Paul	yes	yes	21	23	20	216	(34)	8	Ap.	12	July	No	Req.
Midway Hospital	St. Paul	40	30	25	28	17	140	No	2	Ap.	12	Jan. & July	$25	Req.
Mounds Park Sanitarium	St. Paul	34	55	10	..	26	125	No	1	Ap.	12	July	$25	Req.
Northern Pacific Beneficial Association Hospital	St. Paul	76	76	8	..	..	160	No	2	Ap.	12	July	$25	Req.
St. Joseph's Hospital	St. Paul	140	75	23	12	..	250	(32)	5	Ap.	12	July	$25	None
St. Luke's Hospital [1]	St. Paul	60	40	25	25	25	175	(35)	4	Ap.	12	July	$25	None
MISSOURI														
General Hospital No. 2 (col.)	Kansas City	35	55	8	10	91	199	(36)	10	Ap.	12	July	$20	Req.
Kansas City General Hospital	Kansas City	125	175	50	50	50	450	No	23	Ap.	12	July	$25	Req.
Research Hospital [1]	Kansas City	yes	yes	yes	yes	yes	225	No	6	Ap.	12	July	$25	None
St. Joseph Hospital	Kansas City	124	55	14	18	65	276	No	4	Ap.	12	July	...	None
St. Luke's Hospital	Kansas City	93	40	27	10	80	250	No	6	Ap.	12	July	$50	Req.
St. Mary's Hospital	Kansas City	yes	yes	yes	yes	yes	193	No	6	Ap.	12	July	$50	None
Trinity Lutheran Hospital	Kansas City	yes	yes	yes	yes	yes	143	No	4	Ap.	12	July	$50	None
Missouri Methodist Hospital [1]	St. Joseph	110	50	15	25	..	200	No	4	Ap.	12	July	$50	Req.
St. Joseph's Hospital	St. Joseph	92	30	16	12	16	166	No	2	Ap.	12	July	$50	None
Alexian Brothers' Hospital (male patients only)	St. Louis	60	65	..	..	125	250	(37)	5	Ap.	12	June	$25	Req.
Barnes Hospital [1]	St. Louis	150	150	..	..	..	300	(38)	32	Ap.	12-18	Jan. & July	No	Req.
Christian Hospital	St. Louis	50	35	30	10	15	140	No	3	Ap.	12	July	$50	None
Evangelical Deaconess Home and Hospital [1]	St. Louis	24	24	9	10	62	129	No	4	Ap.	12	July & Aug.	$50-$75	None
Jewish Hospital	St. Louis	81	81	29	24	86	301	(39)	15	Ap.	12	July	$20	Op.
Lutheran Hospital [1]	St. Louis	110	20	25	10	35	200	No	3	Ap.	12	July	$25(m)	None
Missouri Baptist Hospital	St. Louis	150	110	78	25	137	500	No	8	Ap.	12	July	$25	None
St. Anthony's Hospital	St. Louis	yes	yes	yes	yes	yes	240	No	7	Ap.	12	June & July	$25	None
St. John's Hospital	St. Louis	yes	yes	yes	yes	yes	312	No	7	Ap.	12	July	$20	None
St. Louis City Hospital	St. Louis	250	250	75	50	331	956	(40)	48	Ap.	12	July	$25	None
St. Louis City Hospital No. 2 (col.)	St. Louis	yes	yes	yes	yes	yes	314	No	12	Ap.	12	July	$25(n)	Req.
St. Louis Mullanphy Hospital	St. Louis	yes	yes	yes	yes	yes	100	No	4	Ap.	12	July	$25	Req.
St. Luke's Hospital	St. Louis	yes	yes	yes	yes	yes	200	No	10	Ap.	12	July	$25	Req.
St. Mary's Hospital	St. Louis	yes	yes	yes	yes	yes	240	(41)	10	Ap.	12	July	$16.66	None
St. Mary's Infirmary	St. Louis	yes	yes	..	yes	yes	137	(42)	6	Ap.	12	July	$16.66	Req.
MONTANA														
Murray Hospital	Butte	yes	yes	yes	yes	yes	126	No	2	Ap.	12	Jan. & July	$50	Req.
St. James Hospital	Butte	71	45	12	13	41	182	No	2	Ap.	12	July	$60	Req.
NEBRASKA														
St. Francis Hospital [1]	Grand Island	65	40	15	18	12	150	No	2	Ap.	12	July	$25	Op.
Lincoln General Hospital [1]	Lincoln	55	41	22	21	22	161	No	2	Ap.	12	Feb. & June	$50	Req.
St. Elizabeth's Hospital	Lincoln	yes	yes	yes	yes	yes	215	No	2	Ap.	12	July	$50	None
Creighton Memorial St. Joseph's Hospital [1]	Omaha	210	210	50	30	..	500	No	10	Ap.	12	July	$25	....
Evangelical Covenant Hospital	Omaha	25	22	16	12	28	103	No	3	Ap.	12	June	$50	Req.
Immanuel Deaconess Institute	Omaha	35	30	32	12	16	125	No	3	Ap.	12	Jan. & June	$50	Req.
Nebraska Methodist Episcopal Hospital	Omaha	yes	yes	yes	yes	yes	212	No	6	Ap.	12	July	$25	None
St. Catherine's Hospital	Omaha	yes	yes	yes	yes	yes	165	No	4	Ap.	12	July	$25	None
University of Nebraska Hospital	Omaha	70	60	20	30	..	180	No	9	Ap.	18	**	(o)	Op.
NEW HAMPSHIRE														
Mary Hitchcock Memorial Hospital [1]	Hanover	yes	yes	yes	yes	yes	140	No	2	Ap.	12	Jan. & July	(p)	Req.
NEW JERSEY														
Atlantic City Hospital	Atlantic City	84	80	50	20	66	300	(43)	9	Ap.	12	July	$25	Req.
Cooper Hospital	Camden	81	32	90	40	67	310	No	8	Ap.	12	July	$10(g)	Op.
West Jersey Homeopathic Hospital	Camden	85	18	65	58	51	277	No	7	Ap.	12	June	$37.50	Req.
Alexian Brothers' Hospital (male patients only)	Elizabeth	60	60	..	..	80	200	(44)	2	Ex.	12	July	$50	Op.
Elizabeth General Hospital and Dispensary	Elizabeth	70	41	32	10	52	205	No	7	Ex.	12	July	$25	Req.
St. Elizabeth Hospital	Elizabeth	100	50	50	20	30	250	No	5	Ex.	12	July	$25	Req.
Englewood Hospital [1]	Englewood	59	34	40	35	29	197	No	8	Ap.	12	July	$25	Req.
Hackensack Hospital	Hackensack	86	65	30	40	29	250	No	6	Ap.	12	July	$25	Req.
St. Mary Hospital	Hoboken	145	160	25	60	35	425	(45)	9	Ap.	12	July & Sept.	$25	Req.
Christ Hospital	Jersey City	62	16	13	12	17	120	No	4	Ap.	12	†	$25	Op.
Jersey City Hospital [1]	Jersey City	125	175	62	83	155	600	No	41	Ap.	24	Jan. & July	No	Req.
St. Francis Hospital	Jersey City	107	84	..	22	5	218	No	6	Ap.	12	July	$25	Req.
Monmouth Memorial Hospital	Long Branch	50	36	44	14	56	200	No	6	Ap.	12	July	$25	Req.
Mountainside Hospital	Montclair	yes	yes	yes	yes	yes	284	No	6	Ap.	12	July	$25	Req.
Morristown Memorial Hospital	Morristown	yes	yes	yes	yes	yes	168	No	3	Ap.	12	July	$50	Req.
Hospital of St. Barnabas	Newark	yes	yes	yes	yes	yes	136	No	3	Ap.	12	July	$50	Req.
Newark Beth Israel Hospital	Newark	yes	yes	yes	yes	yes	360	No	14	Ex.	18	Varies	No	Req.
Newark City Hospital [1]	Newark	200	180	50	110	160	700	No	21	Ex.	21	†	No	Req.
Newark Memorial Hospital [1]	Newark	yes	yes	31	40	..	150	No	3	Ap.	12	June & Sept.	$25	Op.
St. James' Hospital	Newark	45	24	18	20	18	125	No	2	Ap.	12	July	$50	Req.
St. Michael's Hospital	Newark	yes	yes	yes	yes	yes	350	(46)	7	Ap.	12	(1-f)	$30	Req.
Orange Memorial Hospital	Orange	yes	yes	yes	yes	yes	375	No	4	Ap.	12	July	$25	Req.
Passaic General Hospital	Passaic	116	40	20	10	39	225	No	3	Ap.	12	July	$50	....
St. Mary's Hospital [1]	Passaic	75	50	50	30	10	215	No	2	Ap.	12	July	...	Req.
Barnert Memorial Hospital [1]	Paterson	26	12	10	23	39	110	No	4	Ap.	12	July & Sept.	(e)	Req.
Paterson General Hospital [1]	Paterson	54	33	8	20	188	303	No	5	Ap.	12	July	$50	Op.
St. Joseph's Hospital [1]	Paterson	yes	yes	yes	yes	yes	440	No	5	Ap.	12	July	$25	Req.
Muhlenberg Hospital	Plainfield	90	60	70	39	7	266	No	5	Ap.	12	July	$25	Req.
Holy Name Hospital	Teaneck	91	24	28	15	16	174	(47)	4	Ap.	12	July	$50	Req.
Mercer Hospital	Trenton	52	31	74	24	29	210	No	4	Ap.	12	July	$33.33	Req.
St. Francis Hospital	Trenton	yes	yes	yes	yes	yes	391	No	8	Ap.	12	July	$25	Req.
William McKinley Memorial Hospital	Trenton	yes	yes	yes	yes	yes	145	No	3	Ap.	12	July	$50	Req.
North Hudson Hospital	Weehawken	64	32	36	31	..	163	No	8	Ap.	18	Jan. & June	$25	Op.
NEW YORK														
Albany Hospital [1]	Albany	190	79	35	25	236	565	No	14	Ap.	12	July & Sept.	No	Req.
Memorial Hospital [1]	Albany	91	18	16	..	15	140	No	5	Ap.	12	July	$50	Req.
St. Peter's Hospital [1]	Albany	yes	yes	..	..	..	129	(48)	4	Ap.	12	July	$40	Req.
Auburn City Hospital [1]	Auburn	yes	yes	44	21	5	155	No	2	Ap.	12	July	$50	Op.
Binghamton City Hospital	Binghamton	80	60	84	30	152	406	No	6	Ap.	12	July	$50	Req.
Beth Moses Hospital	Brooklyn	92	42	60	18	..	212	No	13	Ex.	24	Jan. & July	No	Req.
Brooklyn Hospital	Brooklyn	94	52	78	..	70	294	No	14	Ex.	24	July	No	Op.
Brownsville and East New York Hospital	Brooklyn	59	52	53	24	8	196	No	12	Ex.	18	June	No	None
Coney Island Hospital [1]	Brooklyn	86	90	28	68	58	330	No	16	Ex.	18	July	No	Req.
Cumberland Hospital	Brooklyn	94	76	113	67	150	500	No	24	Ap.	24	July	No	Req.
Greenpoint Hospital	Brooklyn	90	62	52	28	68	300	No	12	Ex.	24	July	No	Req.
Jewish Hospital [1]	Brooklyn	yes	yes	yes	yes	yes	650	No	56	Ap.	24	Jan. & July	No	None
Kings County Hospital	Brooklyn	415	305	93	178	669	1660	No	36	Ap.	18	(1-g)	No	Req.
Long Island College Hospital	Brooklyn	yes	yes	yes	yes	yes	470	No	15	Ap.	12	July	No	Req.
Methodist Episcopal Hospital	Brooklyn	123	55	172	25	125	500	No	13	Ap.	24	July	No	....
Norwegian Lutheran Deaconess Home and Hospital [1]	Brooklyn	yes	yes	yes	yes	yes	235	No	8	Ap.	24	June & Sept.	No	Req.

Numerical and other references will be found on page 524.

Name of Hospital	Location	Number of Beds						Affiliated—For What Service	Internships					Dispensary Service
		Surgical	Medical	Obstetric	Pediatric	Other	Total		Number	By Examination or Appointment	Length of Service in Months	Begin	Salary per Month	
St. Catherine's Hospital	Brooklyn	119	94	83	..	..	296	No	12	Ex.	24	July	No	Op.
St. John's Hospital	Brooklyn	50	43	21	26	94	234	No	10	Ap.	15	July	$25	None
St. Mary's Hospital	Brooklyn	134	58	41	20	47	300	No	10	Ap.	24	July	No	....
St. Peter's Hospital	Brooklyn	150	100	..	..	..	250	No	6	Ap.	12	June	No	None
United Israel-Zion Hospital	Brooklyn	100	59	92	26	158	435	No	16	Ex.	18-24	Jan. & June	No	Op.
U. S. Naval Hospital	Brooklyn	161	541	..	..	232	934	(49)	10	Both	12	July	(b)	None
Wyckoff Heights Hospital	Brooklyn	90	55	16	..	14	175	No	10	Ex.	18-24	July	No	Req.
Buffalo City Hospital [1]	Buffalo	94	104	24	197	444	863	No	30	Ap.	12	July	$40	Req.
Buffalo General Hospital	Buffalo	yes	yes	yes	yes	yes	400	No	14	Ap.	12	July	No	Req.
Buffalo Hospital of the Sisters of Charity	Buffalo	109	42	21	26	17	215	(50)	12	Ex.	12	July	$25	Op.
Deaconess Hospital	Buffalo	yes	yes	yes	yes	yes	227	No	5	Ap.	12	July	$25	None
Emergency Hospital of the Sisters of Charity	Buffalo	42	22	..	8	28	100	(51)	5	Ex.	12	July	$25	Req.
Millard Fillmore Hospital	Buffalo	yes	yes	yes	yes	yes	301	No	6	Ap.	12	July	$ 0	None
Clifton Springs Sanitarium and Clinic [1]	Clifton Springs	50	350	12	..	56	468	No	3	Ap.	12	July	$25	Req.
Arnot Ogden Memorial Hospital	Elmira	yes	yes	yes	yes	yes	200	No	1	Ap.	12	July	$25	Req.
St. Joseph's Hospital [1]	Elmira	57	41	27	20	46	191	No	2	Ap.	12	July	$ 0	Op.
Flushing Hospital and Dispensary	Flushing	47	27	32	17	120	243	No	5	Ap.	18	(1-o)	$50	Req.
St. John's Long Island City Hospital	Long Island City	130	48	74	20	..	272	No	10	Ap.	24	July	No	Op.
Erie County Home and Infirmary	Millgrove	yes	yes	yes	yes	yes	300	No	2	Ap.	12	July	$150	Req.
Nassau Hospital	Mineola	32	20	58	30	65	205	No	5	Ap.	12-18	Jan. & July	$50	None
Mount Vernon Hospital	Mount Vernon	52	27	34	5	32	150	No	4	Ex.	18	Jan. & July	(q)	Req.
New Rochelle Hospital [1]	New Rochelle	yes	yes	yes	yes	yes	150	No	4	Ex.	12	July	(e)	Req.
Bellevue Hospital [1]	New York	441	366	140	271	860	2078	No	71	Ex.	12-24	Jan. & July	No	None
Beth David Hospital	New York	yes	yes	yes	yes	yes	128	No	5	Ex.	12	Jan. & July	$25	Req.
Beth Israel Hospital	New York	yes	yes	yes	yes	yes	540	No	19	Ex.	24-36	July & Dec.	No	Req.
Fifth Avenue Hospital	New York	98	51	38	59	40	286	No	10	Ap.	12-15	Apr. & Oct.	No	Req.
Fordham Hospital	New York	123	85	29	45	44	326	No	12	Ex.	16	Varies	No	None
French Hospital	New York	32	32	..	..	120	184	No	6	Ap.	12-24	Jan. & June	No	Req.
Gouverneur Hospital	New York	65	35	22	38	50	210	No	14	Ex.	12-30	Jan. & July	No	None
Harlem Hospital [1]	New York	102	104	80	46	23	355	No	22	Both	12-24	Jan. & July	No	Op.
Hospital for Joint Diseases	New York	yes	yes	..	yes	yes	291	(99)	10	Ap.	12-18	.....	$25-$50	....
Knickerbocker Hospital	New York	54	30	23	10	93	210	No	10	Ap.	24	(1-h)	No	Req.
Lebanon Hospital	New York	51	45	18	20	58	192	No	11	Ex.	20	(1-i)	No	None
Lenox Hill Hospital	New York	81	50	10	62	152	355	No	16	Ex.	24	Feb. & Aug.	(r)	None
Lincoln Hospital	New York	113	105	20	50	124	412	No	23	Ex.	24	Jan. & July	No	Op.
Metropolitan Hospital [1]	New York	244	183	68	350	488	1333	No	32	Ex.	12	July	No	Req.
Mount Sinai Hospital [1]	New York	189	187	..	46	246	668	No	22	Ex.	30	Jan. & July	No	None
New York City Hospital	New York	148	260	76	95	480	1060	No	32	Ex.	24	Jan. & July	No	Op.
New York Homeopathic Medical College and Flower Hospital	New York	yes	yes	34	..	40	228	No	10	Ex.	12	July	$25	Req.
New York Hospital [1]	New York	86	90	..	38	89	303	No	20	Both	24	Jan. & July	No	Op.
New York Infirmary for Women and Children [2]	New York	32	18	35	18	35	138	No	6	Ap.	12	(1-j)	$10	Req.
New York Postgraduate Medical School and Hospital	New York	224	61	..	63	78	424	No	29	Ex.	24-28	Varies	No	Req.
Presbyterian Hospital [1]	New York	yes	yes	yes	yes	yes	544	No	35	Ex.	25	(1-i)	No	Req.
Roosevelt Hospital	New York	156	92	..	40	89	377	No	18	Ex.	24	Jan. & July	No	Op.
St. Francis Hospital	New York	230	115	..	30	25	400	No	8	Ap.	24	Jan. & July	No	None
St. Luke's Hospital	New York	304	211	..	24	..	539	No	19	Ex.	24	Jan. & July	No	Req.
St. Mark's Hospital	New York	yes	yes	yes	yes	yes	225	No	11	Ex.	12	July	$15	Req.
St. Vincent's Hospital	New York	200	132	..	..	20	352	(52)	20	Ex.	24-30	Jan. & July	No	Req.
Sydenham Hospital [1]	New York	yes	yes	yes	yes	yes	200	No	8	Ex.	24	†	No	....
U. S. Marine Hospital No. 43 (Ellis Island)	New York	75	193	..	10	172	450	(53)	4	Ex.	12	July	(b)	Op.
United Hospital	Port Chester	yes	yes	yes	yes	yes	110	No	3	Ap.	12	July	$50(a)	Req.
Vassar Brothers Hospital	Poughkeepsie	44	38	60	21	45	208	No	4	Ap.	12	July	$35	Op.
Genesee Hospital	Rochester	78	60	37	25	..	200	No	5	Ap.	12	July	$25	Req.
Highland Hospital	Rochester	yes	yes	yes	yes	yes	256	No	4	Ap.	12	July	$25	Req.
Rochester General Hospital	Rochester	99	39	43	11	115	307	No	6	Ap.	12	July	$25	Req.
St. Mary's Hospital	Rochester	yes	yes	yes	yes	yes	200	No	4	Ap.	12	July	$25	Req.
Strong Memorial Hospital [1]	Rochester	yes	yes	yes	yes	yes	282	(54)	23	Ap.	12	July & Sept.	No	Req.
Ellis Hospital	Schenectady	185	30	30	30	..	275	No	5	Ap.	12	Aug.	$50	....
Staten Island Hospital	Staten Island	82	66	53	20	98	319	No	5	Ap.	15	†	$30	Req.
U. S. Marine Hosital	Staten Island	204	97	..	..	..	301	(95)	10	Ap.	12	July	(b)	Req.
General Hospital of Syracuse	Syracuse	yes	yes	27	yes	25	110	No	2	Ap.	12	July	No	Req.
Hospital of the Good Shepherd, Syracuse University	Syracuse	yes	yes	yes	yes	yes	279	No	6	Ap.	12	July	No	None
Syracuse Memorial Hospital [1]	Syracuse	yes	yes	yes	yes	yes	262	No	3	Ap.	12	July	No	Req.
Samaritan Hospital	Troy	54	36	4	16	65	175	No	3	Ap.	12	(1-k)	$50	Req.
Troy Hospital	Troy	yes	yes	affil.	yes	yes	280	Yes	4	Ap.	12	July	....	Req.
Grasslands Hospital [1]	Valhalla	98	149	16	72	247	582	No	10	Ap.	12	July	$30	Req.
St. Joseph's Hospital	Yonkers	40	30	20	10	25	125	No	4	Ap.	12	July	....	Op.
NORTH CAROLINA														
Lincoln Hospital (col.)	Durham	37	33	17	10	11	108	No	3	Ap.	12	(1-n)	$5	Req.
Watts Hospital	Durham	66	54	32	22	26	200	No	3	Ap.	12	July	$50(g)	Req.
Rex Hospital	Raleigh	yes	yes	16	16	13	125	No	3	Ap.	12	June	$25	Req.
St. Agnes' Hospital (col.)	Raleigh	55	16	20	9	..	100	No	3	Ap.	12	July & Sept.	No	Req.
Park View Hospital [1]	Rocky Mount	50	25	6	9	10	100	No	2	Ap.	12	July	$50	Op.
City Memorial Hospital	Winston-Salem	yes	yes	yes	yes	yes	225	(56)	5	Ap.	12	July	$25	Req.
NORTH DAKOTA														
Bismarck Hospital and Deaconess Home	Bismarck	66	33	14	10	12	140	No	1	Ap.	12	July	$25	None
St. John's Hospital [1]	Fargo	108	40	37	15	..	200	No	2	Ap.	12	July	$50	Req.
OHIO														
City Hospital	Akron	108	23	76	..	140	350	(57)	6	Ap.	12	July	$25(g)	Req.
St. Thomas Hospital	Akron	yes	yes	yes	yes	yes	185	No	3	Ap.	12	July	$25	None
Cincinnati General Hospital [1]	Cincinnati	150	135	50	100	390	825	(59)	27	Ap.	12	July	No	Req.
Deaconess Hospital	Cincinnati	yes	yes	yes	yes	yes	184	No	5	Ap.	12	July	$25 (g)	....
Good Samaritan Hospital [1]	Cincinnati	300	90	60	30	20	500	No	15	Ap.	12	July	$25	Op.
City Hospital	Cleveland	yes	yes	50	75	640	1100	No	24	Ap.	12	July	No	Req.
Lakeside Hospital [1]	Cleveland	92	72	..	..	99	263	(61)	16	Ap.	12	†	No	Req.
Mount Sinai Hospital	Cleveland	yes	yes	yes	yes	yes	271	(62)	13	Ap.	12	July	$10(n)	Req.
St. Alexis Hospital	Cleveland	132	42	..	26	..	200	(63)	8	Ap.	12	July	$25	Req.
St. John's Hospital	Cleveland	82	53	23	23	27	213	No	9	Ap.	12	July	$20(s)	Req.
St. Luke's Hospital [1]	Cleveland	113	46	43	68	54	324	No	10	Ap.	12	July	$25	Req.
St. Vincent's Charity Hospital	Cleveland	220	50	..	30	..	300	No	12	Ap.	12	July	No	Req.
Woman's Hospital [1]	Cleveland	20	18	33	12	42	125	No	2	Ap.	12	July	$50	None
Grant Hospital	Columbus	204	35	29	40	..	308	No	8	Ap.	12	June & July	$25(a)	None
Mt. Carmel Hospital	Columbus	yes	yes	yes	yes	yes	239	No	11	Ap.	12	July	$50	None
St. Francis Hospital	Columbus	80	70	..	..	..	150	(64)	6	Ap.	12	July	$16.66	Req.
Starling-Loving University Hospital [1]	Columbus	80	37	32	15	86	250	(65)	7	Ap.	12	July	$16.66	Req.
White Cross Hospital	Columbus	125	75	39	36	110	385	No	8	Both	12	July	$25	Req.
Miami Valley Hospital	Dayton	yes	yes	84	15	48	392	No	8	Ap.	12	July	$25	Req.
St. Elizabeth Hosptial	Dayton	100	86	70	22	162	440	No	4	Ap.	12	July	$25	Req.
Elyria Memorial Hospital	Elyria	32	22	29	40	52	175	No	1	Ap.	12	July	$50	Op.

Numerical and other references will be found on page 524.

Name of Hospital	Location	Number of Beds						Affiliated—For What Service	Internships					
		Surgical	Medical	Obstetric	Pediatric	Other	Total		Number	By Examination or Appointment	Length of Service in Months	Begin	Salary per Month	Dispensary Service
Mercy Hospital	Hamilton	95	90	45	20	..	250	No	1	Ap.	12	July	$25	....
Springfield City Hospital	Springfield	yes	yes	28	10	27	136	No	4	Ap.	12	July	$50	Req.
Flower Hospital	Toledo	40	40	35	25	10	150	No	3	Ap.	12	July	$50	None
Lucas County Hospitals	Toledo	yes	yes	10	16	241	407	No	8	Ap.	12	July	$50	Req.
Mercy Hospital	Toledo	45	26	18	12	36	137	No	3	Ap.	12	July	$50	None
St. Vincent's Hospital	Toledo	yes	yes	yes	yes	yes	392	No	10	Ap.	12	July	$25(t)	Req.
Toledo Hospital	Toledo	yes	yes	yes	yes	yes	300	No	6	Ap.	12	July	$50	....
St. Elizabeth Hospital	Youngstown	85	60	25	30	160	360	No	6	Ap.	12	July	$30	Req.
Youngstown Hospital	Youngstown	87	80	26	32	50	275	No	7	Ap.	12	July	$25	Req.
OKLAHOMA														
St. Anthony Hospital [1]	Oklahoma City	yes	yes	50	24	..	250	No	6	Ap.	12	July	$25(t)	Req.
State University Hospital [1]	Oklahoma City	130	100	18	38	100	386	(96)	13	Ap.	12	July	$25	Op.
Morningside Hospital [1]	Tulsa	yes	yes	yes	yes	yes	225	No	4	Ap.	12	Jan. & July	$25(g)	None
St. John's Hospital	Tulsa	yes	yes	yes	yes	yes	340	No	5	Ap.	12	July	$25(t)	Req.
OREGON														
Emanuel Hospital	Portland	80	50	50	10	90	280	No	5	Ap.	12	July	$20	Op.
Good Samaritan Hospital	Portland	150	83	25	20	47	325	No	8	Ap.	12	July	$20	Req.
Multnomah County Hospital [1]	Portland	yes	yes	yes	yes	yes	295	(66)	12	Ap.	12	July	$20	None
Portland Sanitarium	Portland	yes	yes	yes	yes	yes	143	No	2	Ap.	12	July	$75(d)	Req.
St. Vincent's Hospital	Portland	233	75	32	14	32	386	No	10	Ap.	12	July	$40	None
PENNSYLVANIA														
Abington Memorial Hospital [1]	Abington	yes	yes	51	13	12	176	No	5	Ap.	12	July	$25	Req.
Allentown Hospital [1]	Allentown	49	54	10	37	178	328	No	8	Ap.	12	June	No	Req.
Sacred Heart Hospital	Allentown	67	35	9	14	61	186	No	5	Ap.	12	July	No	Req.
Altoona Hospital [1]	Altoona	76	54	17	20	13	180	No	5	Ap.	12	July	$25	Req.
Mercy Hospital	Altoona	yes	yes	yes	yes	yes	134	No	3	Ap.	12	July	$40	Req.
St. Luke's Hospital	Bethlehem	76	50	26	30	34	210	No	6	Ap.	12	July	No	Req.
Braddock General Hospital [1]	Braddock	52	39	25	18	..	134	No	4	Ap.	12	July	$25	Req.
Bryn Mawr Hospital	Byrn Mawr	45	25	48	22	123	263	No	8	Ap.	12	July	$50	Req.
Chester Hospital [1]	Chester	121	71	19	29	40	280	No	6	Ap.	12	July	$20	Req.
G. F. Geisinger Memorial Hospital	Danville	yes	yes	yes	yes	yes	180	No	6	Ap.	12	July	No	Req.
Hamot Hospital	Erie	yes	yes	yes	yes	yes	210	No	6	Ap.	12	July	$25	Req.
St. Vincent's Hospital	Erie	yes	yes	yes	yes	yes	219	No	8	Ap.	12	July	$25	Req.
Westmoreland Hospital	Greensburg	80	50	16	18	16	180	No	4	Ap.	12	July	$50	Req.
Harrisburg Hospital [1]	Harrisburg	42	35	28	24	115	244	No	8	Ap.	12	July	$25	Req.
Harrisburg Polyclinic Hospital [1]	Harrisburg	yes	yes	yes	yes	yes	182	No	4	Ap.	12	July	$25	Req.
Conemaugh Valley Memorial Hospital	Johnstown	80	60	24	68	68	300	No	8	Ap.	12	July	$25	Req.
Lancaster General Hospital [1]	Lancaster	71	45	21	28	95	260	No	6	Ap.	12	July	$25	Req.
McKeesport Hospital	McKeesport	75	70	10	10	10	175	No	5	Ap.	12	July	$25	Req.
Montgomery Hospital	Norristown	30	20	20	20	30	120	No	2	Ap.	12	July	$50	Req.
Chestnut Hill Hospital [1]	Philadelphia	20	20	54	12	..	115	No	4	Ap.	12	July	$50	Req.
Frankford Hospital	Philadelphia	57	24	34	15	..	130	No	6	Ap.	12	July	$20	Req.
Frederick Douglass Memorial Hospital [1] (col.)	Philadelphia	30	15	7	8	15	75	No	3	Ap.	12	June	No	Req.
Germantown Dispensary and Hospital	Philadelphia	101	93	132	38	10	374	No	9	Ap.	18	Jan. & July	No	Req.
Graduate Hospital of the University of Pennsylvania	Philadelphia	yes	yes	yes	yes	yes	455	No	17	Ap.	12-24	July	No	Req.
Hahnemann Medical College Hospital	Philadelphia	168	82	119	28	303	700	No	20	Ap.	12	July	No	Req.
Hospital of the Protestant Episcopal Church	Philadelphia	133	55	..	51	211	450	(67)	18	Ap.	24	Jan. & July	No	Req.
Hospital of the University of Pennsylvania [1]	Philadelphia	154	98	77	37	212	578	No	24	Ap.	24	June & Sept.	No	Req.
Hospital of the Woman's Medical College of Pennsylvania [2]	Philadelphia	yes	yes	43	19	..	134§	(68)	6	Ap.	12	(1-k)	No	None
Jefferson Medical College Hospital	Philadelphia	222	120	58	48	260	688	No	28	Ex.	24	June	No	Req.
Jewish Hospital	Philadelphia	144	62	54	26	140	426	No	12	Ex.	24	June	No	Req.
Lankenau Hospital	Philadelphia	144	89	8	..	57	298	No	8	Ap.	24	†	No	Req.
Memorial Hospital [1]	Philadelphia	35	35	15	15	..	100§	No	4	Ap.	12	July	$25	Req.
Mercy Hospital [1] (col.)	Philadelphia	24	24	20	10	22	100	No	5	Ap.	12	July	No	Req.
Methodist Episcopal Hospital [1]	Philadelphia	yes	yes	40	45	40	300	No	8	Ex.	12	July	No	Req.
Misericordia Hospital [1]	Philadelphia	111	56	..	60	73	300	No	8	Both	12	July	No	Req.
Mount Sinai Hospital	Philadelphia	51	77	..	30	28	186	(69)	9	Ex.	12	June	No	Op.
Pennsylvania Hospital	Philadelphia	129	100	..	24	yes	588	(70)	16	Ap.	24	(1-l)	No	Req.
Philadelphia General Hospital [1]	Philadelphia	400	400	200	200	1400	2600	(71)	57	Ex.	24	July	No	Req.
Presbyterian Hospital	Philadelphia	93	45	41	35	117	331	No	10	Ex.	24	July	No	Req.
St. Agnes Hospital	Philadelphia	147	88	50	28	18	331	No	10	Ap.	12	July	No	Req.
St. Joseph's Hospital	Philadelphia	66	82	80	24	23	275	(72)	9	Ap.	12	July	No	Req.
St. Mary's Hospital	Philadelphia	96	37	40	25	12	210	No	8	Ap.	12	July	No	Req.
Temple Hospital [1]	Philadelphia	126	96	48	15	24	309	No	12	Ex.	18	June & Dec.	No	Req.
U. S. Naval Hospital	Philadelphia	150	280	..	..	270	700	(73)	10	Ap.	12	July	(b)	None
Woman's Hospital of Philadelphia [2]	Philadelphia	44	31	31	22	31	159	No	6	Ap.	12	July & Aug.	No	Req.
Women's Homeopathic Hospital [1]	Philadelphia	47	40	60	28	25	200	No	4	Ap.	12	July	$20	Op.
Allegheny General Hospital	Pittsburgh	90	50	53	58	154	405	No	12	Ap.	12	July	No	Req.
Homeopathic Medical and Surgical Hospital and Dispensary	Pittsburgh	36	30	75	25	144	310	No	8	Ap.	12	July	No	Req.
Mercy Hospital [1]	Pittsburgh	330	141	55	94	50	670	(74)	20	Ap.	12	July	No	Req.
Montefiore Hospital	Pittsburgh	yes	yes	yes	yes	yes	227	No	7	Ap.	12	July	$35	Req.
Passavant Hospital [1]	Pittsburgh	24	20	47	38	29	158	No	6	Ap.	12	July	$25	Req.
Pittsburgh Hospital	Pittsburgh	69	69	25	37	..	200	No	6	Ap.	12	July	No	Req.
Presbyterian Hospital	Pittsburgh	80	80	18	22	..	200	(75)	6	Ap.	12	July	(g)	Req.
St. Francis Hospital [1]	Pittsburgh	180	150	30	40	225	625	(76)	16	Ap.	12	July	No	Req.
St. John's General Hospital	Pittsburgh	75	49	20	58	..	202	No	5	Ap.	12	July	No	Req.
St. Joseph's Hospital and Dispensary	Pittsburgh	45	35	10	22	28	140	No	4	Ap.	12	July	No	Req.
St. Margaret Memorial Hospital [1]	Pittsburgh	50	35	42	26	..	153	No	4	Ap.	12	July	$25	Req.
South Side Hospital [1]	Pittsburgh	78	50	15	25	57	225	No	7	Ap.	12	July	No	Req.
Western Pennsylvania Hospital [1]	Pittsburgh	251	181	55	47	117	651	No	20	Ap.	12	July	No	Req.
Pottsville Hospital	Pottsville	yes	yes	yes	yes	yes	140	No	3	Ap.	12	July	$25	Req.
Reading Hospital [1]	Reading	100	65	50	40	30	285	No	7	Ap.	12	July	No	Req.
St. Joseph's Hospital	Reading	73	34	50	18	30	205	No	5	Ap.	12	July	$25	Req.
Robert Packer Hospital	Sayre	yes	yes	yes	yes	yes	297	No	6	Ap.	12	July	No	Req.
Hahnemann Hospital	Scranton	20	20	27	12	46	125	No	4	Ap.	12	July	$15	Req.
Moses Taylor Hospital	Scranton	54	32	..	12	6	104	(77)	4	Ap.	12	July	$30	Req.
Scranton State Hospital	Scranton	50	50	16	24	48	188	No	6	Ap.	12	July	$8.33	Req.
Uniontown Hosptial	Uniontown	110	71	30	15	..	226	No	6	Ap.	12	July	$25	Req.
Chester County Hospital	West Chester	17	16	17	18	48	116	No	3	Ap.	12	July	$50	Req.
Mercy Hospital [1]	Wilkes-Barre	70	50	14	30	56	220	No	5	Ap.	12	July	No	Req.
Wilkes-Barre General Hospital [1]	Wilkes-Barre	145	112	102	63	28	450	No	12	Ap.	12	July	No	Req.
Columbia Hospital [1]	Wilkinsburg	70	60	46	16	12	204	No	5	Ap.	12	July	No	Req.
Williamsport Hospital	Williamsport	yes	yes	yes	yes	yes	275	No	4	Ap.	12	July	$50	Req.
Windber Hospital	Windber	57	35	10	..	..	102	No	3	Ap.	12	July	No	Req.
York Hospital	York	37	35	12	25	17	126	No	3	Ap.	12	July	$35	Req.
RHODE ISLAND														
Memorial Hospital	Pawtucket	yes	yes	yes	yes	yes	110	No	3	Ap.	12	(1-m)	$16.66	Op.
Rhode Island Hospital [1]	Providence	250	150	25	35	140	600	No	17	Ap.	21	†	No	None
St. Joseph's Hospital	Providence	yes	yes	yes	yes	yes	200	No	4	Ap.	12	July	No	None

Numerical and other references will be found on page 524.

Name of Hospital	Location	Number of Beds						Affiliated—For What Service	Internships					Dispensary Service
		Surgical	Medical	Obstetric	Pediatric	Other	Total		Number	By Examination or Appointment	Length of Service in Months	Begin	Salary per Month	
SOUTH CAROLINA														
Roper Hospital	Charleston	115	120	30	50	10	325	No	18	Ap.	12	June & July	No	Req.
Greenville City Hospital [1]	Greenville	57	24	20	29	..	130	(78)	3	Ap.	12	July	$50	Req.
Spartanburg General Hospital [1]	Spartanburg	yes	yes	yes	yes	yes	127	(78)	3	Ap.	12	July	$25(a)	Req.
TENNESSEE														
Baroness Erlanger Hospital	Chattanooga	yes	yes	yes	yes	yes	200	No	4	Ap.	12	July	$50	Req.
Knoxville General Hospital	Knoxville	yes	yes	yes	yes	yes	261	No	9	Ap.	12	July	$35	Req.
Baptist Memorial Hospital [1]	Memphis	yes	yes	yes	yes	yes	350	No	6	Ap.	12	July	$50	None
Memphis General Hospital	Memphis	100	80	60	60	125	425	No	20	Ap.	18	March	$25	Req.
Methodist Hospital	Memphis	yes	yes	yes	yes	yes	185	No	4	Ap.	12	July	$50	None
St. Joseph's Hospital	Memphis	yes	yes	30	25	..	300	No	8	Ex.	12	July	$50	Req.
Geo. W. Hubbard Hospital (col.)	Nashville	43	48	12	24	11	138	No	5	Ex.	12	June-Oct.	$15	Req.
Nashville General Hospital	Nashville	yes	yes	yes	yes	yes	170	No	6	Ap.	12	July	$25	Req.
St. Thomas Hospital	Nashville	175	20	20	10	..	225	No	6	Ap.	12	July	$40	None
Vanderbilt University Hospital	Nashville	yes	yes	yes	yes	yes	220	No	9	Ap.	12	July	No	....
TEXAS														
Hotel Dieu Hospital	Beaumont	90	60	14	11	..	175	No	2	Ap.	12	July	$30	None
Baylor Hospital [1]	Dallas	188	100	51	30	6	375	No	13	Ap.	12	July	$25	Req.
Parkland Hospital [1]	Dallas	yes	yes	yes	yes	yes	309	No	10	Ap.	12	July	$25	Req.
St. Paul's Hospital	Dallas	yes	yes	yes	yes	yes	335	No	8	Ap.	12	July	$25	Req.
William Beaumont General Hospital	El Paso	120	347	22	11	..	500	No	6	Ap.	12	July	(b)	Req.
City and County Hospital [1]	Fort Worth	28	28	20	16	18	110	No	3	Ap.	12	July	$30	Req.
Harris Clinic Hospital	Fort Worth	yes	yes	yes	yes	yes	100	No	3	Ap.	12	July	$50	Req.
St. Joseph's Infirmary	Fort Worth	yes	yes	yes	yes	yes	216	No	3	Ap.	12	July	$30	None
John Sealy Hospital [1]	Galveston	110	120	25	50	69	374	No	8	Ap.	12	July	No	Req.
Baptist Hospital	Houston	100	40	40	20	..	200	No	4	Ap.	12	July	$50	None
Hermann Hospital	Houston	yes	yes	yes	yes	yes	180	No	5	Ap.	12	July	$30	Req.
Jefferson Davis Hospital	Houston	yes	yes	yes	yes	yes	185	No	6	Ap.	18	July	$50	Req.
Robert B. Green Hospital	San Antonio	50	50	50	25	25	200	No	6	Ap.	12	July	$25	Req.
Santa Rosa Infirmary	San Antonio	152	54	17	10	177	410	No	9	Ap.	12	July	$40	Req.
Station Hospital, Fort Sam Houston	San Antonio	276	309	15	..	..	600	No	14	Ap.	12	Aug.	(b)	Req.
Gulf, Colorado and Santa Fe Hospital	Temple	yes	yes	..	..	..	150	(79)	2	Ap.	12	July	$50-$75	None
Kings Daughters Clinic and Hospital	Temple	yes	yes	yes	yes	yes	125	No	2	Ap.	12	July	$75	Req.
Scott and White Hospital	Temple	yes	yes	yes	yes	yes	200	(79)	14	Ap.	12	July	$50	None
UTAH														
Thomas D. Dee Memorial Hospital	Ogden	88	30	30	12	25	185	No	3	Ap.	12	July	$50	None
Dr. W. H. Groves' Latter Day Saints Hosp.	Salt Lake City	yes	yes	yes	yes	yes	466	No	4	Ap.	12	July	$25	None
Holy Cross Hospital	Salt Lake City	112	58	35	20	..	225	No	3	Ap.	12	July	$35(n)	None
St. Mark's Hospital	Salt Lake City	yes	yes	yes	yes	yes	156	No	3	Ap.	12	July	$35	None
Salt Lake General Hospital	Salt Lake City	41	50	11	14	95	211	No	4	Ap.	12	July	$50	Req.
VERMONT														
Mary Fletcher Hospital [1]	Burlington	yes	yes	15	12	15	145	No	5	Ap.	12	July & Sept.	(v)	Req.
VIRGINIA														
Hospital of St. Vincent de Paul	Norfolk	yes	yes	yes	yes	yes	250	No	5	Ap.	12	July	$25	Req.
Norfolk Protestant Hospital	Norfolk	38	38	10	10	104	200	No	3	Ap.	12	July	$50	None
U. S. Marine Hospital No. 82	Norfolk	75	82	..	..	60	217	(80)	3	Ap.	12	July	(b)	Req.
U. S. Naval Hospital	Norfolk	315	251	..	..	75	641	(81)	8	Ex.	12	July	(b)	Req.
Medical College of Virginia, Hospital Division [1] (Memorial, Dooley, St. Philip and Crippled Children's Hospitals)	Richmond	yes	yes	yes	yes	yes	424	(82)	18	Ap.	12	July	$15	Req.
Stuart Circle Hospital	Richmond	yes	yes	yes	yes	yes	168	No	3	Ap.	12	July	$50	None
Jefferson Hospital	Roanoke	yes	yes	yes	yes	yes	118	No	3	Ap.	12	July	$50	Req.
University of Virginia Hospital [1]	University	yes	yes	yes	yes	yes	279	(93)	12	Ap.	27-36	†	No	Req.
WASHINGTON														
U. S. Naval Hospital	Bremerton	44	44	..	..	132	220	(55)	2	Ex.	12-24	July	(b)	Req.
Columbus Hospital	Seattle	94	70	30	6	..	200	No	3	Ap.	12	July	$25	None
King County Hospital [1]	Seattle	65	98	12	10	165	350	No	7	Ap.	12	July	$75	None
Providence Hospital	Seattle	208	100	45	15	..	368	No	4	Ap.	12	June	$50	None
Seattle City Hospital	Seattle	yes	yes	yes	yes	yes	125	No	7	Ap.	12	July	$75	Req.
Seattle General Hospital	Seattle	50	25	25	..	25	125	(83)	4	Ap.	12	July & Sept.	$50	Req.
Swedish Hospital	Seattle	yes	yes	47	..	65	259	(83)	6	Ap.	12	July & Aug.	$25	Req.
Virginia Mason Hospital	Seattle	yes	yes	yes	yes	yes	150	No	4	Ap.	12	July & Oct.	$50	Req.
Deaconess Hospital	Spokane	97	31	17	13	7	165	(84)	2	Ap.	12	July	$50	Op.
St. Luke's Hospital	Spokane	85	35	30	25	30	205	No	3	Ap.	12	July	$50	Op.
Northern Pacific Beneficial Association Hospital	Tacoma	48	64	20	1	..	133	(85)	2	Ap.	12	July	$25	Req.
Pierce County Hospital	Tacoma	yes	yes	yes	yes	yes	187	No	3	Ap.	12	July	$75	....
Tacoma General Hospital [1]	Tacoma	90	43	40	14	26	213	No	4	Ap.	12	July	$50	None
WEST VIRGINIA														
Charleston General Hospital	Charleston	90	45	10	15	8	168	(86)	5	Ap.	12	July	$50	Req.
Ohio Valley General Hospital	Wheeling	yes	yes	yes	yes	yes	275	No	8	Ap.	12	July	$40	Req.
Wheeling Hospital	Wheeling	115	55	23	10	22	225	No	5	Ap.	12	July	$50	Req.
WISCONSIN														
St. Elizabeth Hospital	Appleton	yes	yes	yes	yes	yes	250	No	2	Ap.	12	July	$50	Op.
St. Joseph's Hospital	Ashland	85	50	25	15	..	175	No	1	Ap.	12	July	$25(a)	Op.
Luther Hospital	Eau Claire	yes	yes	yes	yes	yes	115	No	1	Ap.	12	July	$50	None
St. Agnes Hospital	Fond du Lac	88	51	34	34	38	245	No	4	Ap.	12	June	$50	None
Mercy Hospital	Janesville	yes	yes	yes	yes	yes	175	No	2	Ap.	12	July	$50	Req.
La Crosse Lutheran Hospital	La Crosse	60	50	10	10	10	140	No	2	Ap.	12	July	$25	None
St. Francis Hospital [1]	La Crosse	100	60	45	24	51	280	No	3	Ap.	12	July	$25	Req.
Madison General Hospital	Madison	yes	yes	25	10	..	180	No	4	Ap.	12	July	$30	None
Madison Methodist Hospital	Madison	75	30	20	yes	..	125	No	3	Ap.	12	July	$25-$50	Req.
St. Mary's Hospital	Madison	104	53	25	18	..	200	No	4	Ap.	12	July	$50	Req.
State of Wisconsin General Hospital [1]	Madison	yes	yes	25	30	..	450	No	14	Ap.	12	Jan. & July	No	....
St. Joseph's Hospital [1]	Marshfield	48	46	30	20	26	170	No	3	Ap.	12	July	$50	Req.
Columbia Hospital	Milwaukee	50	17	26	4	13	110	(87)	7	Ap.	24	July	$25	Op.
Evangelical Deaconess Hospital	Milwaukee	yes	yes	yes	yes	yes	180	No	4	Ap.	12	June	$25	Req.
Milwaukee Hospital "The Passavant"	Milwaukee	yes	yes	yes	yes	yes	240	No	7	Ap.	12	July	$25	Op.
Milwaukee Maternity and General Hospital [1]	Milwaukee	26	15	38	40	..	119	No	1	Ap.	12	July	$25	Req.
Mount Sinai Hospital	Milwaukee	yes	yes	yes	yes	yes	201	No	5	Ap.	12	July	$25	Req.
St. Joseph's Hospital	Milwaukee	50	15	20	16	34	135	No	4	Ex.	12	July	$25	Req.
St. Mary's Hospital	Milwaukee	yes	yes	yes	yes	yes	245	No	5	Ap.	12	Apr. & June	....	Req.
Mercy and St. Mary's Hospital [1]	Oshkosh	89	35	20	16	20	180	No	3	Ap.	12	July	$50	None
St. Mary's Hospital	Superior	yes	yes	yes	yes	yes	113	No	2	Ap.	12	Feb. & July	$25	None
Milwaukee County Hospital	Wauwatosa	yes	yes	yes	yes	yes	480	No	17	Ex.	12	July	$25	None
CANAL ZONE														
Gorgas Hospital	Ancon	225	350	40	60	199	874	No	12	Ex.	12	July	$80	Req.
HAWAII														
Queen's Hospital	Honolulu	yes	yes	yes	yes	yes	282	(91)	6	Ap.	18	†	(w)	Req.
PHILIPPINE ISLANDS														
Philippine General Hospital [1]	Manila	184	124	48	50	238	644	No	31	Ap.(x)	12	March	No	Req.
FOREIGN														
Peiping Union Medical College Hospital [1]	Peiping, China	53	58	25	..	150	286	No	20(z)	Ap.	12	July	$7.50	Req.

Information regarding acceptable internships in Canadian hospitals may be obtained from the Canadian Medical Association, 184 College Street, Toronto, G. Harvey Agnew, M.D., Secretary, Department of Hospital Service.

Numerical and other references will be found on page 524.

NOTES

1. Women interns admitted.
2. Women interns only.
(a) Bonus of $300.
(b) Salary established by Government Pay Tables according to rank and service, usually $166.67.
(c) Twenty-five dollars a month for first 6 months, $50 a month for last 6 months.
(d) In lieu of maintenance.
(e) Fifteen dollars a month for first 6 months, $20 a month for last 6 months.
(f) Bonus of $10 for proper completion of histories.
(g) Bonus of $100.
(h) Bonus of $120.
(i) Christmas bonus; also a bonus of $100 at termination of internship
(j) Semi-annual bonus of $150.
(k) Thirty dollars a month for first 6 months, $50 a month for last 6 months.
(l) Ten dollars a month for 11 months plus $190 on completing one year of satisfactory service.
(m) Bonus of $25.
(n) Bonus of $180.
(o) Fifteen dollars a month after first 6 months, $25 a month for last 2 months.
(p) Twenty-five dollars a month for first 6 months, $35 a month for last 6 months.
(q) Fifty dollars a month for first 6 months, $75 a month for next 6 months, and $100 a month for last 6 months.
(r) Bonus of $40.
(s) Bonus of $70.
(t) Bonus of $200.
(v) Bonus of $50.
(w) Fifty dollars a month for first 6 months, $75 a month for next 3 months and $100 a month for last 9 months.
(x) All internships for 1928-29 reserved for the fifth year students of the College of Medicine, University of the Philippines.
(y) First year rotating interns, $125 bonus at end of year; second year nonrotating, $25 a month.
(z) Most internships are filled by graduates of the Peking Union Medical college.
§ Expansion in process or contemplated.
* April, July and August.
** Every two months.
*** March, July, September and November.
† Quarterly.
†† June, July, September and October.
††† January, March and June.
#January, June and October.
April, July and October.
April, June, July and October.
¶ January, May and September.
¶¶ June, July and August.
¶¶¶ Every 6 weeks.
(1-a) January, July, September and October
(1-b) January, April and July.
(1-c) March, June and December.
(1-d) January, March, July and September.
(1-e) April, July, October and December.
(1-f) July, October and December.
(1-g) January, February, July and August.
(1-h) January, July and October.
(1-i) February, June and October.
(1-j) January, July and September.
(1-k) July, August and September.
(1-l) July, August, October and November.
(1-m) April, June and August.
(1-n) June, July and September.
(1-o) Every 4 months.

Affiliation as Referred to in Column Headed: "Affiliated—For What Service."

3. Los Angeles Receiving Hospital, emergency service.
4. Mount Zion Hospital, San Francisco, obstetrics and gynecology.
5. Internships in these hospitals include service in: Highland Hospital, Oakland; Fairmount Hospital, San Leandro; Arroyo Sanatorium, Livermore, and Del Valle Preventorium, Livermore.
6. Mercy Hospital, San Diego, obstetrics.
7. St. Francis Hospital, San Francisco, obstetrics.
8. St. Joseph's Hospital and Children's Hospital, Denver, surgery, pediatrics and obstetrics.
9. Hartford Isolation Hospital.
10. Columbia Hospital for Women and Children's Hospital, Washington, obstetrics and pediatrics.
11. Columbia Hospital for Women, Washington, obstetrics.
12. Hopewell Sanatorium, Macon, tuberculosis.
13. Misericordia Hospital, Chicago, obstetrics.
14. Municipal Contagious Disease Hospital, Chicago, and Chicago-Winfield Tuberculosis Sanitarium, Winfield.
15. Norwegian-American Hospital, Chicago, obstetrics, gynecology and pediatrics.
16. Lake County Tuberculosis Sanatorium, Crown Point.
17. The Hospitals of Indiana University include the Robert W. Long Hospital, the James Whitcomb Riley Hospital for Children, and the William H. Coleman Hospital for Women.
18. St. Vincent's Hospital, Kansas City, Mo., obstetrics.
19. Touro Infirmary, New Orleans, obstetrics, pediatrics and gynecology.
20. Internship in these hospitals includes service in the General, Psychopathic and Tuberculosis Hospitals.
21. Johns Hopkins Hospital, Baltimore, genito-urinary.
22. University of Maryland Hospital, Baltimore, gynecology, pediatrics and obstetrics; Sydenham Hospital, Baltimore, contagious diseases.
23. Internship in this hospital includes services in the Main Hospital, the South Department for Infectious Diseases, Sanatorium Division, Haymarket Square Relief Station, East Boston Relief Station, and Convalescent Home.
24. Boston City Hospital, obstetrics and gynecology.
25. Michigan Mutual Hospital, Detroit, industrial.
26. Herman Kiefer Hospital, Detroit, obstetrics.
27. Herman Kiefer Hospital, contagious diseases and tuberculosis.
28. Herman Kiefer Hospital and Children's Hospital.
29. St. Joseph Retreat, Dearborn, psychiatry.
30. Children's Hospital, Detroit, pediatrics.
31. Muskegon County Tuberculosis Sanatorium, Muskegon.
32. Gillette State Hospital for Crippled Children, St. Paul, orthopedics.
33. Glen Lake Sanatorium, Oak Terrace, tuberculosis.
34. Aneker Hospital, St. Paul, contagious diseases; Shriners' Hospital for Crippled Children, Minneapolis, orthopedics.
35. Children's Hospital, St. Paul, and Gillette State Hospital for Crippled Children, St. Paul, pediatrics and orthopedics.
36. Kansas City General Hospital, Kansas City, Mo.
37. Salvation Army Home and Hospital, St. Louis, obstetrics, pediatrics and gynecology.
38. St. Louis Children's Hospital and Shriners' Hospital for Crippled Children, St. Louis.
39. Jewish Sanatorium, Anglum, tuberculosis.
40. Robert Koch Hospital; also City Isolation Hospital, City Sanitarium and City Infirmary, St. Louis.
41. Mount St. Rose Sanatorium, St. Louis, tuberculosis.
42. St. Mary's Hospital, St. Louis, obstetrics; Mount St. Rose Sanatorium, tuberculosis.
43. Municipal Hospital, Atlantic City, contagious diseases and genito-urinary; Atlantic County Hospital for Tuberculous Diseases, Northfield.
44. St. Elizabeth Hospital, Elizabeth, obstetrics.
45. St. Francis Hospital, Jersey City, and St. Francis Hospital, New York, genito-urinary, radiology and x-ray.
46. Newark Maternity Hospital, Newark, obstetrics.
47. Bergen County Hospital, Ridgewood, contagious diseases.
48. Anthony N. Brady Maternity Hospital, Albany, obstetrics.
49. Methodist Episcopal Hospital, Brooklyn, obstetrics.
50. Providence Retreat, St. Mary's Hospital and Emergency Hospital, Buffalo, psychiatry, obstetrics and general medicine.
51. Providence Retreat, St. Mary's Hospital and Buffalo Hospital of the Sisters of Charity, psychiatry, obstetrics and general medicine.
52. New York Foundling Hospital, obstetrics and pediatrics.
53. John E. Berwind Clinic, New York, obstetrics.
54. Rochester Municipal Hospital, contagious diseases.
55. Swedish Hospital and Children's Orthopedic Hospital, Seattle, obstetrics and pediatrics.
56. Forsyth County Tuberculosis Hospital, Winston-Salem.
57. Children's Hospital, Akron, pediatrics.
59. Hamilton County Tuberculosis Sanatorium, Cincinnati.
60. Booth Hospital, Boston, obstetrics.
61. Babies and Children's Hospital and Maternity Hospital, Cleveland, pediatrics and obstetrics.
62. Cleveland City Hospital, contagious diseases and psychiatry.
63. St. Ann's Maternity Hospital, Cleveland, obstetrics.
64. Starling-Loving University Hospital and Children's Hospital, Columbus, obstetrics and pediatrics.
65. Children's Hospital, Columbus, pediatrics.
66. Shriners' Hospital for Crippled Children and Doernbecher Memorial Hospital, Portland, orthopedics and pediatrics.
67. Kensington Hospital for Women, Philadelphia, obstetrics.
68. Philadelphia General Hospital, pathology.
69. Jewish Hospital, Philadelphia, obstetrics.
70. Philadelphia Lying-In Charity Hospital, obstetrics and gynecology.
71. Philadelphia Hospital for Contagious Diseases.
72. St. Vincent's Hospital for Women and Children, Philadelphia.
73. Maternity Hospital, Philadelphia, obstetrics.
74. Rosella Foundling and Maternity Hospital and Municipal Hospital for Contagious Diseases, Pittsburgh.
75. Elizabeth Steel Magee Hospital and Children's Hospital, Pittsburgh, obstetrics and pediatrics.
76. Municipal Hospital for Contagious Diseases, Pittsburgh.
77. Manhattan Maternity and Dispensary, New York City, obstetrics.
78. Infants' and Children's Sanitarium, Sa'uda, N. C., pediatrics.
79. Gulf, Colorado and Santa Fe Hospital and the Scott and White Hospital affiliated furnish one internship.
80. Norfolk Protestant Hospital and Florence Crittenton Home, Norfolk, obstetrics.
81. Kings' Daughters' Hospital, Portsmouth, obstetrics, pediatrics and gynecology.
82. Pine Camp Hospital, Brook Hill, and Crippled Children's Convalescent Hospital, Richmond, tuberculosis and orthopedics.
83. Children's Orthopedic Hospital, Seattle, orthopedics and pediatrics.
84. Edgecliff Sanatorium, Spokane, tuberculosis.
85. Pierce County Hospital, Tacoma, obstetrics.
86. The Dr. Lewis Prichard Free Clinical Hospital and Hill Crest Sanatorium, Charleston, obstetrics and tuberculosis.
87. Milwaukee Children's Hospital, pediatrics, and South View Municipal Hospital, contagious diseases.
88. Patton State Hospital.
89. St. Francis Hospital and Cottage Hospital, Santa Barbara, metabolic work.
90. Childrens Hospital and maternity service of Los Angeles City Health Department.
91. Kaulkeolani Children's Hospital, Honolulu, pediatrics.
92. San Francisco Hospital, obstetrics, gynecology and pediatrics.
93. Blue Ridge Sanatorium, Charlottesville, tuberculosis.
94. Bridgeport Emergency Hospital.
95. St. Vincent's Hospital, Staten Island, obstetrics, pediatrics and gynecology.
96. Includes service in Crippled Children's Hospital.
97. Children's Hospital, Denver, pediatrics.
98. Woman's Hospital, Pasadena, obstetrics.
99. Jewish Maternity Hospital, New York City, obstetrics
100. Chicago Lying-In Hospital and Children's Memorial Hospital.

DESCRIPTION OF MEDICAL COLLEGES

Below are given brief descriptions of the medical colleges in the United States and Canada that are legally chartered to teach medicine and which, after careful investigation, have been deemed worthy of being recognized as such by the Council on Medical Education and Hospitals of the American Medical Association. Of these ten do not grant degrees. The name, address, year of organization, history and date when the first class graduated are given in each instance. Unless otherwise stated, a class graduated each subsequent year. Where official reports have been received from the college, information regarding faculty, entrance requirements, length of term, fees, students (excluding specials and postgraduates), graduates, name of dean and next session is given without discrimination. Figures for graduates include all who graduated since July 1, 1929. Statements have been added showing the preliminary requirements held by state licensing boards where those requirements include one or two years of college work. Thirteen states, Alaska (Ter.), Delaware, District of Columbia, Illinois, Iowa, Michigan, New Jersey, North Dakota, Pennsylvania, Rhode Island, South Dakota, Utah, Washington and Wisconsin, require also a year's hospital internship as an essential qualification for a license.

ALABAMA

In order to secure licenses to practice medicine in Alabama, students must complete two years of work in an approved college of liberal arts prior to entering on the study of medicine.

Tuscaloosa

UNIVERSITY OF ALABAMA SCHOOL OF MEDICINE, University Campus, Tuscaloosa.—Organized in 1859 at Mobile as the Medical College of Alabama. Classes graduated in 1861 and subsequent years excepting 1862 to 1868, inclusive. Reorganized in 1897 as the medical department of the University of Alabama. Present title assumed in 1907, when all property was transferred to the University of Alabama. In 1920 clinical teaching was suspended and the medical school was removed to the university campus at Tuscaloosa. Coeducational since 1920. The faculty includes 9 professors and 11 instructors, assistants, etc., a total of 20. The course of study covers two years of thirty-six weeks each. The tuition fee each year is $221.50. The Dean is Dr. Stuart Graves. Total registration for 1929-1930 was 103. The sixty-fifth session begins Sept. 10, 1930, and ends May 26, 1931.

ARKANSAS

To secure licenses to practice medicine in Arkansas, students must complete two years of collegiate work before beginning the study of medicine.

Little Rock

UNIVERSITY OF ARKANSAS SCHOOL OF MEDICINE, 300 W. Markham Street.—Organized in 1879 as the Medical Department of Arkansas Industrial University. Present title in 1899. In 1911 the College of Physicians and Surgeons united with it and it became an integral part of the University of Arkansas. The first class was graduated in 1880. Clinical teaching was suspended in 1918, but resumed in 1923. Co-educational. The faculty consists of 30 professors and 42 lecturers and assistants, total 72. The curriculum embraces four years of nine months each. Entrance requirements are two years of collegiate work in addition to a four-year high school course. The fees for the four years, respectively, for residents of Arkansas are $115, $110, $105 and $105; nonresidents are charged $100 additional each year. The Dean is Dr. Frank Vinsonhaler. The total registration for 1929-1930 was 162; graduates, 29. The fifty-second session begins Sept. 15, 1930, and ends June 2, 1931.

CALIFORNIA

To secure a license to practice medicine in California under the "physician's and surgeon's" certificate, students must complete at least a year of work of college grade in physics, chemistry and biology before beginning the study of medicine.

Berkeley-San Francisco

UNIVERSITY OF CALIFORNIA MEDICAL SCHOOL, University Campus, Berkeley; Third and Parnassus Avenues, San Francisco.—Organized in 1863 as the Toland Medical College. The first class graduated in 1864. In 1872 it became the Medical Department of the University of California. In 1909, by legislative enactment, the College of Medicine of the University of Southern California, at Los Angeles, became a clinical department but was changed to a graduate school in 1914. In 1915 the Hahnemann Medical College of the Pacific was merged, and elective chairs in homeopathic, materia medica, and therapeutics were provided. Co-educational. Three years of collegiate work are required for admission. The work of the first year is given at Berkeley and that of the last three years at San Francisco. The faculty is composed of 114 professors and 208 associates and assistants, a total of 322. The course covers four years of eight and one-half months each, and an additional fifth year consisting of an internship in a hospital or of special work in a department of the medical school. Fees for the four years, respectively, for residents of California are $290, $225, $225 and $225; non-residents are charged $300 additional each year. The Dean is Dr. Langley Porter. Total registration for 1929-1930 was 227; graduates, 50. The fifty-eighth session begins Aug. 19, 1930, and ends May 13, 1931.

Loma Linda-Los Angeles

COLLEGE OF MEDICAL EVANGELISTS.—Organized in 1909. The first class graduated in 1914. The laboratory departments are at Loma Linda; the clinical departments at Los Angeles on property bounded by Boyle, Michigan, Bailey and New Jersey Streets. Co-educational since 1909, the date of organization. The faculty is composed of 57 professors and 175 associates, assistants and instructors, a total of 232. The course covers a period of five years including one year of required internship. During the first and second years, the students are in school twelve months each year. This is accomplished by means of the "Cooperative Plan," the student spending alternate months in an approved hospital in practical lines of medical training. The work of the first two years is given at Loma Linda and the third and fourth years at Los Angeles. Two years of college work are required for admission. The total fees for the four years, respectively, are $258.50, $248.50, $334.50 and $316.50. The president is Dr. Percy T. Magan, Los Angeles; the Dean of the Loma Linda Division is Dr. Edward H. Risley, and the Dean of the Los Angeles Division is Dr. Newton Evans. The total registration for 1929-1930 was 370; graduates, 68. The twenty-second session begins July 2, 1930, and ends June 21, 1931.

Los Angeles

UNIVERSITY OF SOUTHERN CALIFORNIA SCHOOL OF MEDICINE.—Organized in 1903 as the College of Physicians and Surgeons. The first class graduated in 1905. In 1909 it became the Medical Department of the University of Southern California. The Medical Department was suspended in 1920; reorganized in May, 1928, under the present title. The faculty consists of 20 professors and 23 instructors, assistants, etc., a total of 43. At present courses for the first two years only are offered. Eventually a five year medical course, including a year's internship in a hospital or other practical training, will be offered. Three years of collegiate work are required for admission. Coeducational since organization. The fee for each of the three years is $374. The Dean is Dr. William D. Cutter. The total registration for 1929-1930 was 101. The next session begins Sept. 15, 1930, and ends June 6, 1931.

San Francisco-Stanford University

STANFORD UNIVERSITY SCHOOL OF MEDICINE, Campus, 2398 Sacramento Street, San Francisco.—Organized in 1908 when, by an agreement, the interests of Cooper Medical College were taken over. The first class was graduated in 1913. Co-educational since organization. The faculty consists of 91 professors and 116 lecturers, assistants, etc., a total of 207. Three years of collegiate work are required for admission. The course covers four years of eight and one-half months each, plus a fifth year of practice or intern work. The fees for the four years, respectively, are $387, $343, $315 and $315. The Dean is Dr. William Ophüls, San Francisco. The total registration for 1929-1930 was 193, graduates, 42. The twenty-first session begins Oct. 1, 1930, and ends June 15, 1931.

COLORADO

No person will be granted a license to practice medicine in Colorado who is not a graduate of a school teaching the healing art as approved by the Colorado Board of Medical Examiners.

Denver

UNIVERSITY OF COLORADO SCHOOL OF MEDICINE, 4200 East Ninth Avenue.—Organized in 1883. Classes were graduated in 1885 and in all subsequent years except 1898 and 1899. Denver and Gross College of Medicine was merged Jan. 1, 1911. Co-educational since organization. The faculty is composed of 50 professors and 120 lecturers, instructors and assistants, a total of 170. The course covers four years of nine months each. The college also is urging a year's internship in a hospital. The entrance requirements are two years of college work counting toward a degree in arts in an accredited college or university. The fees for residents of Colorado, for each of the four years are, respectively, $211, $231, $181 and $191. Nonresidents pay $132 more each year. The dean is Dr. Maurice H. Rees. The total registration for 1929-1930 was 205; graduates, 43. The forty-ninth session begins Sept. 29, 1930, and ends June 12, 1931.

CONNECTICUT

To practice in Connecticut students must have completed at least one year of college work before entering on the study of medicine.

New Haven

YALE UNIVERSITY SCHOOL OF MEDICINE, 333 Cedar Street.—Chartered in 1810 as the Medical Institution of Yale College. Organized in 1812; instruction began in 1813; first class graduated in 1814. A new charter

in 1879 changed the name to the Medical Department of Yale College. In 1884, the Connecticut Medical Society surrendered such authority as had been granted by the first charter. In 1887, Yale College became Yale University. Co-educational since 1916. The faculty consists of 82 professors and 110 lecturers and assistants, a total of 192. The requirements for admission are three years of collegiate work plus completion of courses in physics, inorganic chemistry, qualitative analysis, general biology, organic chemistry and physical chemistry or laboratory physics, all equivalent to the courses in these subjects in Yale University. The student also must have two years of French or German. The course covers four years of nine months each. The fees for the four years, respectively, are $505, $500, $500 and $320. The Dean is Dr. Milton C. Winternitz. The total registration for 1929-1930 was 212; graduates, 53. The one hundred and eighteenth session begins Sept. 25, 1930, and ends June 10, 1931.

DISTRICT OF COLUMBIA

The applicant must have had two years preprofessional education and training in a college or university acceptable to the Commission on Licensure, before entering upon the study of the healing art. In addition to the four year course in medicine, the applicant must complete a year's internship in a hospital.

Washington

GEORGE WASHINGTON UNIVERSITY MEDICAL SCHOOL, 1335 H. Street, N. W.—Organized in 1825 as the Medical Department of Columbian College. Also authorized to use the name National Medical College. Classes were graduated in 1826 and in all subsequent years except 1834 to 1838, and 1861 to 1863, inclusive. The original title was changed to Medical Department of Columbian University in 1873. In 1903 it absorbed the National University Medical Department. In 1904, by an act of Congress, the title of George Washington University was granted to the institution. Co-educational since 1884. The faculty is composed of 63 professors and 116 instructors, demonstrators and assistants, a total of 179. Two years of collegiate work are required for admission. The course covers four years of thirty-two weeks each. The fees for the four years, respectively, are $422, $422, $422 and $388. The Dean is Dr. William C. Borden. The total registration for 1929-1930 was 286; graduates, 45. The one hundred and sixth session begins Sept. 24, 1930, and ends June 10, 1931.

GEORGETOWN UNIVERSITY SCHOOL OF MEDICINE, 920 H Street, N. W.—Organized in 1851. The first class graduated in 1852. The faculty contains 47 professors, 140 instructors and assistants; total 187. Two years of collegiate work are required for entrance. The course of study covers four terms of eight and one-half months each. The fees for each of the four sessions, respectively, are $390, $360, $360 and $375. The Dean is Dr. John A. Foote. The registration for 1929-1930 was 515; graduates, 100. The eightieth session begins Sept. 22, 1930, and ends June 3, 1931.

HOWARD UNIVERSITY SCHOOL OF MEDICINE, Fifth and W Street, N. W.—Chartered in 1867. Organized in 1869. The first class graduated in 1871. Co-educational since 1869. Colored students compose a majority of those in attendance. The faculty comprises 30 professors and 41 lecturers and assistants, 71 in all. The admission requirements are at least two years of collegiate work, including physics, chemistry, botany and zoology, English and French or German. The course covers four years of thirty-three weeks each. The fees for each of the four sessions, respectively, are $264.50, $259.50, $259.50 and $266.50. The Dean is Dr. Numa P. G. Adams. Registration for 1929-1930 was 241; graduates, 64. The sixty-third session begins Oct. 1, 1930, and ends June 5, 1931.

GEORGIA

To secure a license to practice medicine in Georgia, students must complete at least 60 semester hours of college work, including 12 semester hours of each of physics and biology before entering on the study of medicine.

Atlanta

EMORY UNIVERSITY SCHOOL OF MEDICINE, 50 Armstrong Street and Druid Hills.—Organized in 1854. Classes graduated 1855 to 1861, when it suspended. Reorganized in 1865. A class graduated in 1865 and each subsequent year except 1874. In 1898 it merged with the Southern Medical College (organized in 1878), taking the name of Atlanta College of Physicians and Surgeons. In 1913 it merged with the Atlanta School of Medicine (organized in 1905), reassuming the name of Atlanta Medical College. Became the Medical Department of Emory University in 1915; assumed present title in 1917. Two years of college work required for admission. The faculty has 15 professors and 118 associates and assistants, a total of 133. The course of study is four years of thirty-two weeks each. The fees for each of the four years, respectively, are $270, $255, $255 and $280. The Dean is Dr. Russell H. Oppenheimer. Total registration for 1929-1930 was 196; graduates 46. The next session begins Sept. 30, 1930, and ends June 9, 1931.

Augusta

UNIVERSITY OF GEORGIA MEDICAL DEPARTMENT, University Place.—Organized in 1828 as the Medical Academy of Georgia, the name being changed to the Medical College of Georgia in 1829. Since 1873 it has been known as the Medical Department of the University of Georgia. Property transferred to university in 1911. Classes were graduated in 1833 and all subsequent years except 1862 and 1863. Co-education was begun in 1920. The faculty includes 36 professors and 40 assistants, 76 in all. Two years of college work required for entrance. The course is four years of thirty-four weeks each. The fees for each of the four years, respectively, are $105, $100, $100 and $100 for residents of Georgia, and $300 each year for nonresidents. The Dean is Dr. William H. Goodrich. The total registration for 1929-1930 was 140; graduates, 30. The one-hundred-second session begins Sept. 27, 1930, and ends June 8, 1931.

ILLINOIS

To be eligible for license to practice medicine in Illinois, students must complete two years of collegiate work, including courses in physics, chemistry, biology and a modern language before entering on the study of medicine. In addition to their four year course in medicine they must complete also a year's internship in a hospital.

Chicago

UNIVERSITY OF CHICAGO, GRADUATE SCHOOL OF MEDICINE OF THE OGDEN GRADUATE SCHOOL OF SCIENCE.—Organized in 1924 as a part of the Ogden Graduate School of Science. The work of the first two years of the medical course has been given on the Quadrangles since 1899, and that of the clinical years was added in 1924 with the organization of this medical school. Candidates for the degree of Doctor of Medicine do the work of the first two years at the School of Medicine of the Ogden Graduate School of Science. The work of the third and fourth years may be taken at Rush Medical College or may be continued in this school. A fifth year, spent in successful internship in an approved hospital or in advanced work in some branch of medical science, is required for graduation. Co-educational. The faculty is composed of 61 professors, 83 associates, instructors, etc., a total of 144. The requirements for admission are four years of college work, including courses in college chemistry, physics and biology, and a reading knowledge of German or French. No application for admission is accepted after June 1. The school operates under the "quarter system" in which the year is divided into four quarters of twelve weeks each; the completion of the work of three of these quarters gives credit for a college year. The tuition fees for each of the four years is $375.00. The Dean of the medical students is Dr. B. C. H. Harvey. Total registration for 1929-1930 was 291. The next session begins Oct. 1, 1930, and ends June, 1931. Students are admitted at the beginning of either autumn or spring quarters.

UNIVERSITY OF CHICAGO, RUSH MEDICAL COLLEGE.—Chartered in 1837; held first class in 1843. First class graduated in 1844. In 1887 the College became the medical department of Lake Forest University, retaining, however, its self-government. This relation was dissolved in April, 1898, and in the same month affiliation with the University of Chicago was established. Since that time the work of the first two years has been given on the University Quadrangles. In May, 1924, by a new contract, the University of Chicago took over the work of Rush Medical College as a department of the University. Since 1914 the course has included a fifth year consisting of a hospital internship or of a fellowship in one of the departments. Co-educational since 1898. Classes are limited to 140 students. No application for admission is accepted after June 1. The school operates under the "quarter system" in which the year is divided into four quarters of twelve weeks each; the completion of the work of three of these quarters gives credit for a college year. The faculty is composed of 112 professors, 143 associates, instructors, etc., a total of 255. The fee for the third year is $305, and for the fourth $325. Total registration for 1929-1930 was 344. The Dean is Dr. Ernest E. Irons. The eighty-sixth session begins Oct. 1, 1930. The school is in session all year except the month of September.

NORTHWESTERN UNIVERSITY MEDICAL SCHOOL, 303 East Chicago Avenue.—Organized in 1859 as the Medical Department of Lind University. First class graduated in 1860. In 1864 it became independent as the Chicago Medical College. It united with Northwestern University in 1869, but retained the name of Chicago Medical College until 1891, when the present name was taken. Became an integral part of Northwestern University in 1905. Co-educational since 1926. The faculty comprises 111 professors and 238 lecturers and assistants, a total of 349. The requirements for admission are such as will admit to the College of Liberal Arts of Northwestern University, plus two years of college work, including courses in physics, chemistry, biology and a modern language. The course covers four years of eight months each and a year's internship in an approved hospital. The total fees are $355 each year. The Dean is Dr. Irving S. Cutter. The total registration for 1929-1930 was 522; graduates, M.B., 135; M.D., 125. The seventy-first session begins Sept. 30, 1930, and ends June 15, 1931.

UNIVERSITY OF ILLINOIS COLLEGE OF MEDICINE, 508 S. Honore Street.—Organized in 1882 as the College of Physicians and Surgeons. The first class graduated in 1883. It became the Medical Department of the University of Illinois by affiliation in 1897 and an integral part in 1910. The relationship with the university was cancelled in June, 1912, but restored in March, 1913, when the present title was assumed. Co-educational since 1898. Two years of collegiate work are required for admission. The curriculum covers four years of thirty-two weeks each, and a year's internship in an approved hospital. The faculty is composed of 85 professors, 205 assistants and instructors, a total of 290. The tuition fees are $165 for each of the first three years and $170 for fourth year resident students. There is an additional fee of $35 for nonresidents. The Dean is Dr. David John Davis. The total registration for 1929-1930 was 549; graduates, 122. The forty-ninth session begins Oct. 6, 1930, and ends June 6, 1931.

LOYOLA UNIVERSITY SCHOOL OF MEDICINE, 706 S. Lincoln Street, Chicago.—Organized in 1868 as the Bennett College of Eclectic Medicine and Surgery. Eclecticism dropped and title of Bennett Medical College assumed in 1909. First class graduated in 1870, and a class graduated each subsequent year. Absorbed the Illinois Medical College in 1910 and the Reliance Medical College in 1911. In 1910 it became by affiliation the School of Medicine of Loyola University; the university assumed full control in 1915. Took over by purchase the Chicago College of Medicine and Surgery in 1917. Loyola University has been co-educational since 1900. Two years of college work are required for admission. The course of study is five years including an internship in a hospital. The faculty is composed of 275 professors, assistants, lecturers, instructors, etc. The fees are $300 each year. The Dean is Dr. Louis D. Moorhead. The total enrolment for 1929-1930 was 496; graduates, 91. The next session begins Oct. 1, 1930, and ends June 13, 1931.

INDIANA

Students who intend to practice medicine in Indiana must complete two years of collegiate work, in addition to an accredited four-year high school course, prior to beginning the study of medicine.

Bloomington and Indianapolis

INDIANA UNIVERSITY SCHOOL OF MEDICINE.—Organized in 1903, but did not give all of the work of the first two years of the medical course until 1905. In 1907, by union with the State College of Physicians and Surgeons, the complete course in medicine was offered. In 1908 the Indiana Medical College, which was formed in 1905 by the merger of the Medical College of Indiana (organized in 1878), the Central College of Physicians and Surgeons (organized in 1879), and the Fort Wayne College of Medicine (organized in 1879) merged into it. The first class was graduated in 1908. Co-educational since organization. The faculty consists of 78 professors and 155 lecturers, associates and assistants, a total of 233. Two years of collegiate work are required for admission. The work of the first year is emphasized only at Bloomington. The work of the other three years is all at Indianapolis. The fees for each of the four years, respectively, are $190, $175, $175 and $185 for residents of Indiana and $75 more a year is charged for nonresidents. A fifth optional intern year leading to the "M.D. cum laude" has been added. The Dean at Bloomington is Dr. B. D. Myers; the Dean is Dr. Charles P. Emerson, Indianapolis. The total registration for 1929-1930 was 424; graduates, 103. The next session begins Sept. 10, 1930, and ends June 15, 1931.

IOWA

Students who desire to practice medicine in Iowa must complete two years of work in an approved college of liberal arts prior to beginning the study of medicine, this preliminary college work to have included courses in physics, chemistry, biology and English; they must also have completed a year's internship in an approved hospital.

Iowa City

STATE UNIVERSITY OF IOWA COLLEGE OF MEDICINE, University Campus.—Organized in 1869. First session began in 1870. First class graduated in 1871. Absorbed Drake University College of Medicine in 1913. Co-educational since 1870. The faculty is made up of 38 professors, 56 lecturers, demonstrators and assistants, a total of 94. Two years of college work, including courses in physics, chemistry, biology, French or German and English, are required for admission. The course of study covers four years of thirty-four weeks each. The tuition fee is $192 each year for residents of Iowa and $456 for nonresidents, plus a matriculation fee of $10 and a graduation fee of $15. The Dean is Dr. Henry S. Houghton. Total registration for 1929-1930 was 508; graduates, 97. The sixty-first session begins Sept. 22, 1930, and ends June 1, 1931.

KANSAS

Students who desire to practice medicine in Kansas must complete at least two years of collegiate work, including college courses in physics, chemistry and biology in addition to an accredited four-year high school course.

Lawrence and Kansas City

UNIVERSITY OF KANSAS SCHOOL OF MEDICINE.—Organized in 1880. It offered only the first two years of the medical course until 1905, when it merged with the Kansas City (Mo.) Medical College, founded in 1869, the College of Physicians and Surgeons, founded in 1894, and the Medico-Chirurgical College founded in 1897. First class graduated in 1906. The clinical courses are given at Kansas City. Absorbed Kansas Medical College in 1913. Co-educational since 1880. The faculty includes 23 professors and 115 instructors, assistants, etc., a total of 138. The requirements for admission are two years of collegiate work. The course covers four years of nine months each. The total fees for residents of the state for each of the four years are, respectively, $162, $154, $155 and $160. For nonresidents the fees are $50 additional each year. The Dean is Dr. Harry Roswell Wahl. The total registrations for 1929-1930 was 233; graduates 44. The fifty-first session begins Sept. 18, 1930, and ends June 8, 1931.

KENTUCKY

To be eligible for license to practice medicine in Kentucky, students must complete two years of college work, including courses in physics, chemistry, biology and a modern language, prior to beginning the study of medicine.

Louisville

UNIVERSITY OF LOUISVILLE SCHOOL OF MEDICINE, First and Chestnut Streets.—Organized in 1837 as Louisville Medical Institute. The first class graduated in 1838, and a class graduated in each subsequent year except in 1863. In 1846 name changed to University of Louisville Medical Department. In 1907 it absorbed the Kentucky University Medical Department; in 1908 the Louisville Medical College, the Hospital College of Medicine and the Kentucky School of Medicine. In 1922 it changed its name to the University of Louisville School of Medicine. Co-educational since organization. Two years of college work required for admission. The faculty numbers 28 professors and 112 assistants, instructors, etc., a total of 140. Students limited to 90 Freshmen, 90 Juniors; number of Sophomores and Seniors contingent upon number promoted. Course covers four years of thirty-two weeks each, exclusive of vacations and examinations. Fees for four years are, respectively, $365, $365, $370 and $380. The Dean is Dr. John Walker Moore. Total registration for 1929-1930 was 348; graduates, 86. Next session begins Sept. 15, 1930, and ends May 29, 1931.

LOUISIANA

Students who desire to practice medicine in Louisiana must complete, at an approved college or university two years of college work, including biology, physics, chemistry and a modern language, before entering on the study of medicine.

New Orleans

TULANE UNIVERSITY OF LOUISIANA SCHOOL OF MEDICINE, University Campus and 1551 Canal Street—Organized in 1834 as the Medical College of Louisiana. Classes were graduated in 1835 and in all subsequent years except 1863-1865, inclusive. It was transferred to the Medical Department of the University of Louisiana in 1847 and became the Medical Department of the Tulane University of Louisiana in 1884. Present name in 1913, when it became the School of Medicine of the College of Medicine of the Tulane University of Louisiana. Co-educational since 1915. The faculty has 28 professors and 129 associate and assistant professors, instructors and assistants, a total of 157. The course covers four years of thirty-two weeks each. Two years of collegiate work are required for admission. Total fees for each of the four years, respectively, are $350, $340, $325 and $355. The Dean is Dr. Charles C. Bass. The total registration for 1929-1930 was 432; graduates, 103. The ninety-seventh session begins Sept. 24, 1930, and ends June 9, 1931.

MARYLAND

To be eligible to practice medicine in Maryland, students, in addition to a four-year high school education, must complete at least two years of college work, including courses in physics, chemistry, biology, prior to beginning the study of medicine.

Baltimore

JOHNS HOPKINS UNIVERSITY SCHOOL OF MEDICINE, Washington and Monument Streets.—Organized in 1893. Co-educational since organization. The first class graduated in 1897. The faculty consists of 70 professors and 290 instructors, assistants, etc., a total of 360. The requirements for admission demand that the applicant possess a collegiate degree and have a knowledge of French and German (two years each of college instruction), physics and biology, such as may be obtained from a year's course, and a two years' course in chemistry. The course extends over four years of eight and one-half months each. The total fees for each year are $610. The Dean is Dr. Alan M. Chesney. Total registration for 1929-1930 was 283; graduates, 69. The thirty-eighth session begins Sept. 30, 1930, and ends June 9, 1931.

UNIVERSITY OF MARYLAND SCHOOL OF MEDICINE AND THE COLLEGE OF PHYSICIANS AND SURGEONS, Lombard and Greene Streets.—Organized in 1807 as the College of Medicine of Maryland. The first class graduated in 1810. In 1812 it became the University of Maryland School of Medicine. Baltimore Medical College was merged into it in 1913. In 1915 the College of Physicians and Surgeons of Baltimore was merged and the present name assumed. Co-educational since 1918. The faculty consists of 89 professors and 143 instructors and assistants, a total of 232. Two years of college work are required for admission. The course covers four years of eight months each. The fees for the four years, respectively, are $385, $375, $375 and $390 for residents of the state; for nonresidents the fees are $150 additional each year. The Dean is Dr. J. M. H. Rowland. Total registration for 1929-1930 was 414; graduates, 87. The one hundred and twenty-third session begins Sept. 29, 1930, and ends June 6, 1931.

MASSACHUSETTS

Boston

HARVARD UNIVERSITY MEDICAL SCHOOL, 240 Longwood Avenue.—Organized in 1782. The first class graduated in 1788. It has a faculty of 107 professors and 337 instructors and assistants, a total of 444. Candidates for admission must present a college degree or two years of

work leading to such a degree with standing in the upper third of the class. The college work must include a year of physics, biology, general chemistry, a half year of organic chemistry, and a reading knowledge of French or German. The total fee for each of the four years is $400 plus $5 the first year for matriculation. The Dean is Dr. David L. Edsall. The total registration for 1929-1930 was 516; graduates, 135. The one-hundred and forty-eighth session begins Sept. 22, 1930, and ends June 18, 1931.

BOSTON UNIVERSITY SCHOOL OF MEDICINE, 80 East Concord Street.—Organized in 1873. In 1874 the New England Female Medical College, founded in 1848, was merged into it. The first class graduated in 1874. Became nonsectarian in 1918. Co-educational since organization. Three years of collegiate work are required for admission. The faculty includes 17 professors, 131 associates, etc., making a total of 148. The course covers four years of thirty-two weeks each. Total fees for each of the four years, respectively, are $391.50, $391.50, $391.50 and 401.50 for women and $5.00 more each year for men. The Dean is Dr. Alexander S. Begg. Total registration for 1929-1930 was 218; graduates, 47. The fifty-eighth session begins Sept. 24, 1930, and ends June 15, 1931.

TUFTS COLLEGE MEDICAL SCHOOL, 416 Huntington Avenue.—Organized in 1893 as the Medical Department of Tufts College. The first class graduated in 1894. Co-educational since 1894. It has a faculty of 56 professors and 184 assistants, lecturers, etc., a total of 240. Two years of collegiate work are required for admission. The course covers four years of eight months each. The total fees for each of the four years are $357, $352, $352 and $362. The Dean is Dr. A. Warren Stearns. Total registration for 1929-1930 was 487; graduates, 117. The thirty-fifth session begins Sept. 24, 1930, and ends May 29, 1931.

MICHIGAN

Students who desire to practice medicine in Michigan, in addition to four-year high school education, must complete two years of work in an approved college, including courses in physics, chemistry, biology and French or German, prior to beginning the study of medicine; they must also have completed an internship in a hospital.

Ann Arbor

UNIVERSITY OF MICHIGAN MEDICAL SCHOOL.—Organized in 1850 as the University of Michigan Department of Medicine and Surgery. The first class graduated in 1851. Present title assumed in 1915. Co-educational since organization. It has a faculty of 23 professors, 12 associate professors, 21 assistant professors, 66 instructors and lecturers; a total of 122. The entrance requirements are ninety semester hours, including courses in chemistry, physics and biology, with laboratory work, and a reading knowledge of French or German. The curriculum embraces four years of nine months each. The total fees for Michigan students are $188, $193, $193, $190.50 for each of the four years, respectively, plus a matriculation fee of $10; for nonresidents, $80 per year additional. The matriculation fee for nonresidents is $25. The secretary is Dr. Arthur C. Curtis. The total registration for 1929-1930 was 639; graduates, 168. The eighty-first session begins Sept. 29, 1930, and ends June 22, 1931.

Detroit

DETROIT COLLEGE OF MEDICINE AND SURGERY, 1516 St. Antoine St.—Organized as the Detroit College of Medicine in 1885 by consolidation of Detroit Medical College, organized in 1868, and the Michigan College of Medicine, organized in 1880. Reorganized with present title in 1913. The first class graduated in 1886. In 1918 it became a municipal institution under the control of the Detroit Board of Education. Co-educational since 1917. Entrance requirements are three years of college work. The faculty embraces 33 professors, 101 lecturers, etc., a total of 134. The course covers four years of nine months each and a fifth hospital intern year. The total fees each year for residents of Detroit are $200; for nonresidents, $285. The Dean is Dr. W. H. MacCraken. The total registration for 1929-1930 was 286; graduates, 43. The forty-sixth session begins Sept. 25, 1930, and ends June 20, 1931.

MINNESOTA

Students intending to practice medicine in Minnesota, in addition to a four-year high school course, must complete two years of college work, including courses in physics, chemistry and biology, prior to beginning the study of medicine.

Minneapolis

UNIVERSITY OF MINNESOTA MEDICAL SCHOOL.—Organized in 1883 as the University of Minnesota College of Medicine and Surgery, reorganized in 1888 by absorption of St. Paul Medical College and Minnesota Hospital College. The first class graduated in 1889. In 1908 the Minneapolis College of Physicians and Surgeons, organized in 1883, was merged. In 1909 the Homeopathic College of Medicine and Surgery was merged. Present title in 1913. Co-educational since organization. The faculty includes 145 professors and 149 instructors and assistants, a total of 294. The curriculum covers four years of nine months each, and a year's internship in an approved hospital. The school is operated on the four-quarter plan. The entrance requirements are two years of university work, which must include six semester credits of rhetoric, eight semester credits of physics; thirteen credits of general chemistry, qualitative and quantitative analysis and organic chemistry; eight credits of zoology, and a ready knowledge of scientific German. Students are required to secure a degree of B.S. or A.B. before receiving the degree of Bachelor of Medicine (M.B.) which is granted at the end of the four-year course. The M.D. is conferred after a year of intern work, of advanced laboratory work, or of public health work has been completed. Classes are graduated three times a year, in March, June and December. Total fees are $225 for residents and $300 for nonresidents, each year of three quarters. The Dean is Dr. E. P. Lyon. The total registration for 1929-1930 was 528; graduates, 119. The forty-second session begins Sept. 29, 1930, and ends June 13, 1931. The summer quarter began June 17.

MISSISSIPPI

Students desiring to practice medicine in Mississippi, in addition to a four-year high school education, must complete two years of work in an approved college or university, including courses in physics, chemistry, biology and a modern language, before entering on the study of medicine.

University

UNIVERSITY OF MISSISSIPPI SCHOOL OF MEDICINE.—Organized in 1903. Co-educational since organization. Gives only the first two years of the medical course. In 1908 a clinical department was established at Vicksburg, but was discontinued in 1910 after graduating one class. The session extends over eight and one-half months. Entrance requirements are two years of collegiate work. The total fees each year for residents are $163; for nonresidents, $50 per year additional. The faculty numbers 9 professors and 8 instructors, assistants, etc., a total of 17. The total registration for 1929-1930 was 66. The twenty-eighth session begins Sept. 17, 1930, and ends June 2, 1931.

MISSOURI

Columbia

UNIVERSITY OF MISSOURI SCHOOL OF MEDICINE.—Organized at St. Louis in 1845; was discontinued in 1855, but was reorganized at Columbia in 1872. Teaching of the clinical years was suspended in 1909. Co-educational since 1872. The faculty includes 17 professors and 15 assistant professors, lecturers, etc., a total of 32. The course covers two years of thirty-five weeks each. The entrance requirements are three years of college work including French or German, 8 hours; general zoology, 8 hours; physics, 8 hours; inorganic chemistry, 8 hours; organic chemistry, 5 hours, and general bacteriology, 3 hours. Total fees for the first year are $141, for the second $126. Nonresidents of the state pay $10 per term extra. The Dean is Dr. Edgar Allen. Total registration for 1929-1930 was 74. The next session begins Sept. 8, 1930, and ends June 4, 1931.

St. Louis

ST. LOUIS UNIVERSITY SCHOOL OF MEDICINE, 1402 South Grand Boulevard.—Organized in 1901 as the Marion-Sims-Beaumont Medical College by union of Marion-Sims Medical College, organized in 1890, and Beaumont Hospital Medical College, organized in 1886. First class graduated in 1902. It became the Medical School of St. Louis University in 1903. The faculty is composed of 75 professors and 201 instructors, and assistants, a total of 276. The requirement for admission is a qualitative standard of two years of collegiate study in the customary subjects but applicants presenting meritorious credit in excess of the two year minimum are accepted by preference. The curriculum covers four years of thirty-two weeks each. The summer is optional and offers courses academically equivalent to those in the regular session. The total fees for the four years, respectively, are $380, $375, $375 and $395. The Dean is Rev. Alphonse M. Schwitalla, Ph.D., and the Associate Dean is Dr. Charles Hugh Neilson. The total registration for 1929-1930 was 530; graduates, 122. The next session begins Sept. 23, 1930, and ends June 1, 1931.

WASHINGTON UNIVERSITY SCHOOL OF MEDICINE, Kingshighway and Euclid Avenue.—Organized in 1842 as the Medical Department of St. Louis University. The first class graduated in 1843. In 1855 it was chartered as an independent institution under the name of St. Louis Medical College. In 1891 it became the Medical Department of Washington University. In 1899 it absorbed the Missouri Medical College. Co-educational since 1918. The faculty comprises 41 professors and 219 lecturers, instructors, etc., a total of 260. Four years of college work are required for admission, including courses in English, physics, chemistry and biology, and a reading knowledge of German or French. The course is four years of eight months each. The total fees for the four years are, respectively, $422, $417, $417 and $422. The Dean is Dr. McKim Marriott. The total registration for 1929-1930 was 308; graduates, 78. The next session begins Sept. 25, 1930, and ends June 9, 1931.

NEBRASKA

Omaha

UNIVERSITY OF NEBRASKA COLLEGE OF MEDICINE, Forty-Second Street and Dewey Avenue.—Organized in 1881 as the Omaha Medical College. The first class graduated in 1882. It became the Medical Department of Omaha University in 1891. In 1902 it affiliated with the University of Nebraska, with the present title. The first two years were given at Lincoln and the last two in Omaha until 1913, when all four years were transferred to Omaha. Co-educational since 1882. The faculty is composed of 62 professors and 69 lecturers and instructors, total 131. Two years of collegiate work are required for admission, including courses in physics, chemistry and zoology. The fees for each of the four years, respectively, are $217, $212, $212 and $212. The Dean is Dr. C. W. M. Poynter. Total registration for 1929-1930 was 316; graduates, 64. The next session begins Sept. 19, 1930, and ends June 6, 1931.

CREIGHTON UNIVERSITY SCHOOL OF MEDICINE, 306 North 14th Street.—Organized in 1892 as the John A. Creighton Medical College. Present title in 1921. The first class graduated in 1893. Co-educational since organization. It has a faculty of 57 professors and 43 instructors, lecturers and assistants, a total of 100. Two years of collegiate work are required for admission. The course of study embraces four years of eight months each. The total fees each year for the four years are, respectively, $315, $285, $285 and $295. The Dean is Dr. Hermann von W. Schulte. Total registration for 1929-1930 was 240; graduates, 47. The forty-ninth session begins Sept. 25, 1930, and ends June 4, 1931.

NEW HAMPSHIRE

Students desiring to practice medicine in New Hampshire, in addition to a four-year high school education, must complete at least two years of work in an approved college of liberal arts, prior to beginning the study of medicine.

Hanover

DARTMOUTH MEDICAL SCHOOL.—Organized as New Hampshire Medical Institute in 1797. The first class graduated in 1798. It is under the control of the trustees of Dartmouth College. Clinical teaching was discontinued in 1914. The faculty is made up of 14 professors and 5 instructors, a total of 19. Three years of collegiate work are required for admission. The course covers nine calendar months in each year, or eight months of actual teaching. Candidates for the A.B. degree in Dartmouth College may substitute the work of the first year in medicine for that of the senior year in the academic department. The fees for the first year are $410 and $400 for the second year. The Dean is Dr. John P. Bowler. The total registration for 1929-1930 was 39. The next session opens Sept. 18, 1930, and ends June 23, 1931.

NEW YORK

Students who desire to practice in New York must complete two years of college work, including courses in physics, chemistry, biology, English composition and literature, before entering on the study of medicine.

Albany

ALBANY MEDICAL COLLEGE, 47 New Scotland Avenue.—Organized in 1838. The first class graduated in 1839. It became the Medical Department of Union University in 1873. In 1915 Union University assumed educational control. Co-educational since 1915. The faculty is composed of 25 professors and 68 instructors, assistants, etc., a total of 93. Two years of collegiate work, including college courses in physics, chemistry (including organic and analytic), biology, English, and a modern foreign language are required for admission. The curriculum covers four years of eight months each. The total fees for the four years, respectively, are $320, $315, $305 and $305. The Dean is Dr. Thomas Ordway. The total registration for 1929-1930 was 128; graduates, 20. The one hundredth session begins Sept. 22, 1930, and ends June 15, 1931.

Buffalo

UNIVERSITY OF BUFFALO SCHOOL OF MEDICINE, 24 High Street.—Organized in 1846. The first class graduated in 1847. It absorbed the Medical Department of Niagara University in 1898. Co-educational since organization. The faculty is composed of 64 professors and 149 lecturers, assistants, etc., a total of 213. Two years of collegiate work, including college courses in physics, chemistry, biology, English and French or German, are required for admission. The course covers four years of eight months each. The total fees for each of the four years are $527, $527, $517 and $527. The Dean is Dr. Edward W. Koch. Total registration for 1929-1930 was 284; graduates, 68. The eighty-fifth session begins Sept. 24, 1930, and ends June 10, 1931.

New York

COLUMBIA UNIVERSITY COLLEGE OF PHYSICIANS AND SURGEONS, 630 West 168th Street.—Organized in 1807 by the regents of the University of the State of New York as their medical department. The first class graduated in 1811. In 1860 it became, by affiliation, the Medical Department of Columbia College. It was made a permanent part of Columbia College by legislative enactment in 1891. That institution became Columbia University in 1896. Co-educational since 1917. The faculty is composed of 180 professors and 423 instructors, demonstrators, etc., a total of 603. Two years of collegiate work of 72 points, including courses in physics, chemistry, biology, English and either French or German, constitute the minimum requirement for admission. The work covers four years of eight months each. The Dean is Dr. William Darrach. The total fees for the four years, respectively, are: $535, $520, $520 and $540. Total registration for 1929-1930 was 423; graduates, 104. The one hundred and twenty-third session begins Sept. 24, 1930, and ends June 3, 1931.

CORNELL UNIVERSITY MEDICAL COLLEGE, First Avenue and Twenty-Eighth Street, New York City, and Ithaca.—Organized in 1898. The work of the first year may be taken either in Ithaca or in New York. Co-educational since organization. The faculty is composed of 76 professors and 157 assistants, lecturers, instructors, etc., a total of 233. All candidates for admission must be graduates of approved colleges or scientific schools or seniors of approved colleges which will permit them to substitute the first year of this medical school for the fourth year of their college course and will confer on them the Bachelor degree on the completion of the year's work. The candidate must also have a knowledge of physics, chemistry, biology, English and a modern language. The fees for each of the four years are, respectively, $510, $500, $500 and $535. The Director is Dr. G. Canby Robinson. Total registration for 1929-1930 was 241 (including Ithaca students); graduates, 56. The thirty-third session begins Sept. 29, 1930, and ends June 11, 1931.

LONG ISLAND COLLEGE HOSPITAL, 350 Henry Street, Brooklyn.—Organized in 1858. The first class graduated in 1860. Co-educational since 1918. It has a faculty of 110 professors and 148 assistants, instructors, etc., a total of 258. At least two years of collegiate work, including college courses in physics, chemistry and biology, are required for admission. The course covers four years of eight months each. The fees for the four years, respectively, are $545, $560, $530 and $560. The Dean is Prof. Adam M. Miller. Total registration for 1929-1930 was 438; graduates, 100. The seventy-second session begins Sept. 29, 1930, and ends June 6, 1931.

NEW YORK HOMEOPATHIC MEDICAL COLLEGE AND FLOWER HOSPITAL, 450 East 64th Street.—Organized in 1858. Incorporated in 1860 as the Homeopathic Medical College of the State of New York. The title New York Homeopathic Medical College was assumed in 1869. Present title assumed in 1908. The first class graduated in 1861. Co-educational since 1919. The course covers four years of eight months each. It has a faculty of 54 professors, 16 assistant professors, and 86 lecturers and assistants, a total of 156. The total fees for the four years are, respectively, $540, $530, $530 and $560. The Dean is Dr. Claude A. Burrett. Total registration for 1929-1930 was 354; graduates, 82. The seventy-first session begins Sept. 15, 1930, and ends June 2, 1931.

UNIVERSITY AND BELLEVUE HOSPITAL MEDICAL COLLEGE, 338 East Twenty-Sixth Street.—Organized in 1898 by the union of the New York University Medical College, organized in 1841, and the Bellevue Hospital Medical College, organized in 1861. It is the Medical Department of New York University. First class graduated in 1899. Co-educational since 1919. The faculty is composed of 88 professors, associate professors and assistant professors, and 176 lecturers, instructors, etc., in all, 264. The course covers four years of eight months each. Entrance requirements are that all candidates must be graduates of approved colleges or scientific schools, or seniors in good standing in approved colleges or scientific schools upon condition that their faculty will permit them to substitute the first year in University and Bellevue Hospital Medical College for the fourth year of their college course, and will confer upon them the bachelor's degree upon the satisfactory completion of the year's work. The fees for the four years, respectively, are $540, $528, $517 and $536. The Dean is Dr. Samuel A. Brown. Total registration for 1929-1930 was 495; graduates 123. The next session begins Sept. 17, 1930, and ends June 10, 1931.

Rochester

UNIVERSITY OF ROCHESTER SCHOOL OF MEDICINE, Elmwood Ave. and Crittenden Blvd.—Organized in 1925 as the Medical Department of the University of Rochester. Co-educational since organization. The faculty is composed of 39 professors, 79 lecturers, assistants, instructors, etc., a total of 118. The work embraces a graded course of 4 years of 9 months each. Three years of collegiate work are required for admission. The total fees for each year are $400. The total registration for 1929-1930 was 133; graduates, 24. The Dean is Dr. George H. Whipple. The sixth session begins Sept. 22, 1930, and ends June 15, 1931.

Syracuse

SYRACUSE UNIVERSITY COLLEGE OF MEDICINE, 309-311 South McBride Street.—Organized in 1872, when the Geneva Medical College, chartered in 1834, was removed to Syracuse, under the title "The College of Physicians and Surgeons of Syracuse University." Present title assumed in 1875, when a compulsory three-year graded course was established. The first class graduated in 1873 and a class graduated each subsequent year. In 1889 the amalgamation with the university was made complete. Course extended to four years in 1896. Co-educational since organization. The faculty is composed of 29 professors and 141 associate and assistant professors, lecturers and instructors, a total of 170. Two years of a recognized college course are required for admission. The course covers four years of thirty-four weeks each. The fees for each of the first three years are $400, for the fourth year $410. The Dean is Dr. Herman G. Weiskotten. The total enrolment for 1929-1930 was 185; graduates, 45. The sixtieth session begins Sept. 19, 1930, and ends June 1, 1931.

NORTH CAROLINA

Students intending to practice medicine in North Carolina must complete two years of college work, including courses in physics, chemistry and biology in addition to 14 units of high school work, before beginning the study of medicine.

Chapel Hill

UNIVERSITY OF NORTH CAROLINA SCHOOL OF MEDICINE.—Organized in 1890. Until 1902 this school gave only the work of the first two years, when the course was extended to four years by the establishment of a department at Raleigh. The first class graduated in 1903. A class was graduated each subsequent year, including 1910, when the clinical department at Raleigh was discontinued. Co-educational since 1914. Two years of collegiate work are required for admission. The faculty is composed of 9 professors and 3 instructors, a total of 12. The fees for each year are $250. The Dean is Dr. I. H. Manning. The total registration for 1929-1930 was 82. The forty-fifth session begins Sept. 19, 1930, and ends June 4, 1931.

Durham

DUKE UNIVERSITY SCHOOL OF MEDICINE, Durham, N. C.—Organized in 1927. The first class will be admitted on Oct. 1, 1930. Co-educational. The faculty is composed of 12 professors and 88 associate professors, assistant professors, lecturers, instructors and assistants, a total of 100. The entrance requirements are intelligence and character, plus two years of college work, including two years each of chemistry and English, and one year each of biology, physics and mathematics. The Duke University School of Medicine has laboratories and class rooms for 300 students, a hospital of 400 beds and teaching privileges at the Watts Hospital (220 beds) and the Lincoln Hospital (108 beds). The academic year consists of four quarters of eleven weeks each. Students may either study four quarters each year, and if satisfactory will receive the M.D. degree after three calendar years, or three quarters in each year, and if satisfactory be graduated after four calendar years. The object of utilizing the summer quarters is to provide more time for longer postgraduate intern training. Duke University will grant the degree of Bachelor of Science to students who have completed satisfactorily 70 semester hours in Duke University or some other approved university, six quarters in the Duke University School of Medicine, creditable extra work and have written an acceptable thesis. There are no scholarships in the School of Medicine but students after their third quarter who are in need of assistance are eligible for loans from the Angier B. Duke Loan Fund. The expenses for one quarter are: tuition, $150; room rent, $50; board, $75; laundry, $10 to $20; books, $10 to $20. Each student must own a modern microscope ($100 to $150). The Dean is Dr. Wilburt C. Davison. Total registration for 1930-1931 is 60 freshmen and 20 juniors. The first session commences Oct. 1, 1930, the spring quarter ends June 13, 1931, and the summer quarter ends Sept. 5, 1931.

Wake Forest

WAKE FOREST COLLEGE SCHOOL OF MEDICINE.—This school was organized in 1902. The faculty, including the professors of chemistry, physics and biology, numbers 9 professors and 7 assistants. Only the first two years of the medical course are offered. After the completion of freshman and sophomore college work and two years of medicine, a certificate will be given. The B.S. degree in medicine will be given only after completion of three years of college work and two years of medicine. Each annual course extends over nine months. The fees for the first year are $220 and $225 for the second year. The Dean is Thurman D. Kitchin. The total registration for 1929-1930 was 53. The twenty-ninth session begins Sept. 16, 1930, and ends June 4, 1931.

NORTH DAKOTA

Students intending to practice medicine in North Dakota, in addition to a four-year high school education, must complete two years of work in an approved college of liberal arts, including courses in Latin, physics, chemistry, biology, botany and zoology, prior to beginning the study of medicine, and must show evidence of having spent at least one year as an intern in a hospital.

University

UNIVERSITY OF NORTH DAKOTA SCHOOL OF MEDICINE.—Organized in 1905. Offers only the first two years of the medical course. Co-educational since organization. Two years' work in a college of liberal arts is required for admission. The fees are $65 each year for resident students and $135 for nonresidents. The faculty consists of 5 professors and 8 instructors, a total of 13. The Dean is Dr. H. E. French. The total registration for 1929-1930 was 63. The twenty-fifth session begins Sept. 16, 1930, and ends June 9, 1931.

OHIO

Cincinnati

UNIVERSITY OF CINCINNATI COLLEGE OF MEDICINE, Eden and Bethesda Avenues, Mount Auburn.—Organized in 1909 by the union of the Medical College of Ohio (founded in 1819) with the Miami Medical College (founded in 1852). The Medical College of Ohio became the Medical Department of the University of Cincinnati in 1896. Under a similar agreement, March 2, 1909, the Miami Medical College also merged into the University, when the title of Ohio-Miami Medical College of the University of Cincinnati was taken. Present title assumed in 1915. Co-educational since organization. Two years of college work are required for admission. The faculty consists of 90 professors and 184 associates, assistants, etc., a total of 274. The course covers four years of eight months each. A year's internship in an approved hospital is also required. The total fees for the four years are, respectively, $360, $360, $300 and $320, and if not legal citizens of Cincinnati, $50 additional. The Dean is Dr. Arthur C. Bachmeyer. The total registration for 1929-1930 was 283; graduates, 58. The next session begins Sept. 22, 1930, and ends June 13, 1931.

Cleveland

WESTERN RESERVE UNIVERSITY SCHOOL OF MEDICINE, 2109 Adelbert Road.—Organized in 1843 as the Cleveland Medical College. The first class graduated in 1844. It assumed the present title in 1881. In 1910 the Cleveland College of Physicians and Surgeons was merged. Co-educational since 1919. The faculty includes 35 professors and 171 lecturers, assistants, etc., a total of 206. The curriculum embraces three years of eight and one-half months each and one year of eleven months. Three years of college work are required for admission with the additional requirement that the student must secure the baccalaureate degree on completion of one or two years of work in the medical school. The total fees for each of the four years are, respectively, $380, $365, $355 and $365. The Dean is Dr. Torald Sollmann. The total registration for 1929-1930 was 241; graduates, 54. The eighty-eighth session begins Sept. 18, 1930, and ends June 18, 1931.

Columbus

OHIO STATE UNIVERSITY COLLEGE OF MEDICINE, Neil and Eleventh Avenues.—Organized in 1907 as the Starling-Ohio Medical College by the union of Starling Medical College (organized 1847) with the Ohio Medical University (organized 1890). In 1914 it became an integral part of the Ohio State University with its present title. Co-educational since organization. The faculty consists of 71 professors and assistant professors, 71 lecturers, instructors, demonstrators, etc., a total of 122. Two years of collegiate work are required for admission. The course covers four years of 34 weeks each. Tuition fees are $196, $186, $186 and $191 each year, respectively, for residents of Ohio, and $105 more for nonresidents. The Dean is Dr. John H. J. Upham. The total registration for 1929-1930 was 311; graduates, 61. The next session begins Sept. 30, 1930, and ends June 9, 1931.

OKLAHOMA

Students intending to practice medicine in Oklahoma, in addition to a four-year high school education, must complete two years of work in an approved college of liberal arts, including courses in physics, chemistry, biology and a modern language, prior to beginning the study of medicine.

Oklahoma City

UNIVERSITY OF OKLAHOMA SCHOOL OF MEDICINE.—Organized in 1900. Gave only the first two years of the medical course at Norman until 1910, when a clinical department was established at Oklahoma City. Beginning September, 1929, entire course has been given at Oklahoma City. The first class graduated in 1911. Co-educational since organization. It has a faculty of 43 professors and 65 lecturers, assistants, etc., a total of 108. Two years of college work are required for admission. The course is four years of nine months each. An optional course of six years is offered for the degree of B.S. and M.D. The total fees for the four years are, respectively, $108, $115.50, $28 and $35. For students residing outside the State of Oklahoma there is a tuition fee of $200 per year. The Dean is Dr. LeRoy Long, School of Medicine Bldg., 13th and Phillips Street, Oklahoma City, Okla. The total registration for 1929-1930 was 222; graduates 47. The thirtieth session begins Sept. 15, 1930, and ends June 2, 1931.

OREGON

Students who desire to practice in Oregon must complete two years of college work before entering on the study of medicine.

Portland

UNIVERSITY OF OREGON MEDICAL SCHOOL, Marquam Hill.—Organized in 1887. The first class graduated in 1888, and a class graduated each subsequent year except 1898. The Willamette University Medical Department was merged in 1913. Co-educational since organization. It has a faculty of 57 professors and 151 lecturers, assistants, etc., a total of 208. Entrance requirements are three years of college work or its equivalent. The course is four years of thirty-three weeks each. The total fees for the four years are, respectively, $200, $195, $190 and $190 for residents of Oregon, and $60 per year additional for nonresidents. The Dean is Dr. Richard B. Dillehunt. The total registration for 1929-1930 was 227; graduates, 42. The forty-fourth session begins Oct. 3, 1930, and ends June 11, 1931.

PENNSYLVANIA

Students intending to practice medicine in Pennsylvania, in addition to a four-year high school education, must complete a year's work in an approved college of liberal arts, including college courses in physics, chemistry and biology, before beginning the study of medicine. They must also have completed an internship of at least one year in an approved hospital.

Philadelphia

UNIVERSITY OF PENNSYLVANIA SCHOOL OF MEDICINE, Thirty-Sixth Street and Hamilton Walk.—Organized in 1765. Classes were graduated in 1768 and in all subsequent years except 1772 and 1775-1779, inclusive. The original title was the Department of Medicine, College of Philadelphia. The present title, School of Medicine of the University of Pennsylvania, was adopted in 1909. It granted the first medical diploma issued in America. In 1916 it took over the Medico-Chirurgical College of Philadelphia to develop it as a graduate school. Co-educational since 1914. The faculty consists of 83 professors, associate and assistant professors, and 238 lecturers, associates, instructors, etc., a total of 321. Three years of college work are required for admission, including courses in physics, biology or zoology, chemistry, including general inorganic, organic and analytical, English and French or German. The first class is limited to 110 students; third and fourth to 135 each. The course embraces four years study of thirty-three weeks each. The total fees are $500 each year, with a deposit fee of $15 and a matriculation fee of $5. The Dean is Dr. William Pepper. Total registration for 1929-1930 was 476; graduates, 129. The one hundred and sixty-fifth session begins Sept. 26, 1930, and ends June 17, 1931.

JEFFERSON MEDICAL COLLEGE, 1019 Walnut Street.—Organized in 1825 with its present title as the Medical Department of Jefferson College, Canonsburg, Pa. Classes have been graduated annually since 1826. In 1838 a separate university charter was granted without change of title, since which time it has continued under the direction of its own board of trustees. It has a faculty of 59 professors, associate and assistant professors, and 165 associates, lecturers, demonstrators and instructors, a total of 224. Entrance requirements are a completed standard four-year high school or college preparatory course, or the equivalent, and in addition three years of work leading to a degree in an approved college of arts and science, including specified courses in physics, general and organic chemistry and biology, with laboratory work in each subject. The course of study covers four years of eight and one-half months each. The total fees for the four years are, respectively, $440, $430, $425 and $425. The Dean is Dr. Ross V. Patterson. The total registration for 1929-1930 was 587; graduates, 140. The one hundred and sixth session begins Sept. 22, 1930, and ends June 5, 1931.

WOMAN'S MEDICAL COLLEGE OF PENNSYLVANIA, 2101 North College Avenue.—Organized in 1850. Classes were graduated in 1852 and in all subsequent years except 1862. It has a faculty of 26 professors and 52 assistants, lecturers, etc., in all, 78. Entrance requirements are a completed course in a standard secondary school, and in addition two years of collegiate work, including courses in physics, chemistry, biology and French or German. The curriculum covers four years of eight months each. Fees for each of the four years are, respectively, $350, $375, $400 and $400. The Dean is Dr. Martha Tracy. The total registration for 1929-1930 was 116; graduates, 14. The eightieth session begins Sept. 24, 1930, and ends June 10, 1931.

After September 1 address will change to Harry Avenue and Abbotsford Road, East Falls, Philadelphia.

HAHNEMANN MEDICAL COLLEGE AND HOSPITAL OF PHILADELPHIA, 216 North Broad Street.—Organized in 1848 as the Homeopathic Medical College of Pennsylvania. In 1869 it united with the Hahnemann Medical College of Philadelphia, taking the latter title. Assumed present title in 1885. The first class graduated in 1849. Entrance requirements are a completed course in a standard secondary school and in addition two years devoted to a college course, including English and either French, German or Spanish, physics, chemistry and biology. It has a faculty of 59 professors and 79 lecturers, instructors, etc., in all, 138. The work covers four years of eight and one-half months each. Fees for each of the four years are, respectively, $350, $352, $352 and $375. The Dean is Dr. William A. Pearson. The total registration for the college year 1929-1930 was 470; students, 78. The eighty-third session begins Sept. 30, 1930, and ends June 11, 1931.

THE TEMPLE UNIVERSITY SCHOOL OF MEDICINE, Broad and Ontario Streets.—Organized in 1901. The first class graduated in 1904. Co-educational since organization. The faculty numbers 26 professors and 146 associates, assistants, etc., a total of 172. Three years of college work are required for admission. The fees for each of the four years, respectively, are $415, $390, $390 and $390. The Dean is Dr. Williams N. Parkinson. The total registration for 1929-1930 was 290; graduates, 53. The twenty-ninth session begins Sept. 24, 1930, and ends June 18, 1931.

Pittsburgh

UNIVERSITY OF PITTSBURGH SCHOOL OF MEDICINE, Bigelow Boulevard.—Organized in 1886 as the Western Pennsylvania Medical College and in 1908 became an integral part of the University of Pittsburgh, removing to the university campus in 1910. The first class graduated in 1887. Co-educational since 1899. The faculty is composed of 19 professors and 185 associates, assistants, etc., 204 in all. Entrance requirements are two years of college work, including English, chemistry (inorganic and organic), physics and biology. The course of study is four years of eight and one-half months each. The total fees for the four years, respectively, are $415, $400, $400 and $410. The Dean is Dr. Raleigh R. Huggins. The total registration for 1929-1930 was 260; graduates, 60. The forty-fifth session begins Sept. 22, 1930, and ends June 10, 1931.

SOUTH CAROLINA

Students intending to practice medicine in South Carolina must complete, in addition to high school work, two years in an approved college, including courses in English, physics, chemistry and biology.

Charleston

THE MEDICAL COLLEGE OF THE STATE OF SOUTH CAROLINA, 16 Lucas Street.—Organized in 1823 as the Medical College of South Carolina. The first class graduated in 1825. In 1832 a medical college bearing the present title was chartered and the two schools continued as separate institutions until they were merged in 1838. Classes were graduated in all years except 1862 to 1865, inclusive. In 1913, by legislative enactment, it became a state institution. Co-educational from 1895 to 1912, when privileges for women were withdrawn, but they were restored in 1917. It has a faculty of 33 professors and 42 lecturers, instructors, etc., a total of 65. The course covers four years of eight months each. Two years of collegiate work including courses in physics, chemistry, biology and a modern foreign language are required for admission, in addition to a standard high school preparation. The total fees are $185, $185, $190, $190 each year, respectively. The Dean is Dr. Robert Wilson. Total enrolment for 1929-1930 was 159; graduates, 35. The one-hundred-first session begins Sept. 25, 1930, and ends June 4, 1931.

SOUTH DAKOTA

Students intending to practice medicine in South Dakota must show that they matriculated in and graduated from medical colleges which required at least two years of collegiate work for admission, including courses in physics, chemistry, biology and a modern language. They must also have completed a year's internship in an approved hospital.

Vermilion

UNIVERSITY OF SOUTH DAKOTA SCHOOL OF MEDICINE.—Organized in 1907. Co-educational since organization. Offers only the first two years of the medical course. Two years' work in a college of liberal arts is required for admission. The fees are $100 each year for residents, $150 for nonresidents. The faculty numbers 11. The Dean is Dr. George R. Albertson. The total registration for 1929-1930 was 46. The twenty-fourth session begins Sept. 17, 1930, and ends June 6, 1931.

TENNESSEE

Students intending to practice medicine in Tennessee must complete two years of collegiate work, including courses in physics, chemistry, biology and a reading knowledge of French or German, in addition to a four-year high school course, before entering on the study of medicine.

Memphis

UNIVERSITY OF TENNESSEE COLLEGE OF MEDICINE, 847 Union Avenue.—Organized in 1876 at Nashville as Nashville Medical College. First class graduated 1877, and a class graduated each subsequent year. Became Medical Department of University of Tennessee in 1879. In 1909 it united with the Medical Department of the University of Nashville to form the joint Medical Department of the Universities of Nashville and Tennessee. This union was dissolved in 1911. The trustees of the University of Nashville by formal action of that board named the University of Tennessee College of Medicine as its legal successor. In 1911 it moved to Memphis, where it united with the College of Physicians and Surgeons. The Memphis Hospital Medical College was merged in 1913. Lincoln Memorial University Medical Department was merged in 1914. Co-educational since 1911. The faculty includes 71 professors and 126 assistants, instructors, etc., a total of 207. Entrance requirements are a high school education plus two years of collegiate work. Students taking the two-year premedical course in Knoxville may secure the B.S. and M.D. degrees. The fees are: for the first quarter, $133.50; second to sixth quarters, $113.50 each; seventh to ninth quarters, $108.50 each; tenth to twelfth quarters, $118.50 each. For residents of the state the charge is reduced $50 each quarter. The administrative officer is Orren W. Hyman, Ph.D. Total registration for 1929-1930 was 405; graduates, 86. During the academic year 1930-1931, the quarters begin: July 11, Sept. 29, Jan. 2 and March 23.

Nashville

VANDERBILT UNIVERSITY SCHOOL OF MEDICINE, Twenty-First and Edgehill.—This school was founded in 1874. The first class graduated in 1875. Co-educational since September, 1925. The faculty consists of 67 professors and 115 lecturers, a total of 182. Students must have successfully completed at least three years of college work with such grades as will entitle them to receive the Bachelor's degree after one year in the School of Medicine. The course covers four years of nearly nine months each. The total fees for the four years, respectively, are $315, $315, $315 and $320. The Dean is Dr. Waller S. Leathers. The total registration for 1929-1930 was 196; graduates, 48. The fifty-seventh session begins Sept. 23, 1930, and ends June 10, 1931.

MEHARRY MEDICAL COLLEGE. Colored. 118 First Avenue, South.—This school was organized in 1876 as the Medical Department of Central Tennessee College, which became Walden University in 1900. First class graduated in 1877. Obtained new charter independent of Walden University in 1915. Co-educational since 1876. The faculty is made up of 23 professors and 37 instructors, demonstrators, lecturers, etc., 60 in all. Two years' work in a college of liberal arts is required for admission. The work embraces four years of thirty-two weeks each. Tuition, $250. The President is Dr. John J. Mullowney. Total registration for 1929-1930 was 206; graduates, 38. The fifty-fifth session begins Oct. 1, 1930, and ends May 28, 1931.

TEXAS

Students intending to practice medicine in Texas must complete at least two years of collegiate work, including courses in physics, chemistry, biology and English in addition to a high school course, before entering on the study of medicine.

Dallas

BAYLOR UNIVERSITY COLLEGE OF MEDICINE, 810 College Avenue.—Organized in 1900 as the University of Dallas Medical Department. In 1903 it took its present name and became the Medical Department of Baylor University. It acquired the charter of Dallas Medical College in 1904. Co-educational since 1900, the date of organization. The first class graduated in 1901. The faculty consists of 66 professors and 59 instructors and assistants, a total of 125. Entrance requirements are two years of college work in addition to a four year high school education. The course is four years of eight months each. The fees for each of the four years, respectively, are $312, $297, $287 and $287. The Dean is Dr. Walter H. Moursund. Total registration for 1929-1930 was 371; graduates, 87. The thirty-first session begins Sept. 29, 1930, and ends June 1, 1931.

Galveston

UNIVERSITY OF TEXAS SCHOOL OF MEDICINE, 912 Avenue B.—Organized in 1891. The first class graduated in 1892. Co-educational since organization. It has a faculty of 42 professors and 16 lecturers and instructors, a total of 58. The curriculum embraces four years of eight months each. The entrance requirement is two years of collegiate work in addition to a four-year high school education. The freshman class is limited to 100 students on a scholarship basis, Texans having preference. The total fees for the four years, respectively, are $82, $78, $66 and $80 for residents of the state, and $150 additional each year for nonresidents. The Dean is Dr. George E. Bethel. Total registration for 1929-1930 was 308; graduates, 44. The fortieth session begins Oct. 1, 1930, and ends May 30, 1931.

UTAH

Students intending to practice medicine in Utah, in addition to a four-year high school education, must complete at least two years of collegiate work, including courses in physics, chemistry and biology, prior to beginning the study of medicine. In addition to the course in medicine they must complete a year's internship in a hospital.

Salt Lake City

UNIVERSITY OF UTAH SCHOOL OF MEDICINE.—Organized in 1906. Co-educational since organization. Gives only first two years of medical course. Each course covers thirty-six weeks. Three years of collegiate work are required for admission. The medical faculty consists of 7 professors and 13 lecturers and assistants, a total of 20. The fees are $190 for the first year and $200 for the second year. The Dean is Dr. B. I. Burns. Total registration for 1930-1931 was 61. The twenty-fourth session begins Sept. 28, 1930, and ends June 6, 1931.

VERMONT

Students who desire to practice medicine in Vermont, in addition to a standard four-year high school education, must complete two years of collegiate work, including college courses in physics, chemistry and biology, before entering on the study of medicine.

Burlington

UNIVERSITY OF VERMONT COLLEGE OF MEDICINE, Pearl Street, College Park.—Organized with complete course in 1822. Classes graduated in 1823 to 1836, inclusive, when the school was suspended. It was reorganized in 1853 and classes were graduated in 1854 and in all subsequent years. Co-educational since 1920. It has a faculty of 34 professors and 40 lecturers, instructors, preceptors, etc., a total of 74. Two years of college work in addition to a four-year high school education is required for admission. The course of study covers four years of nine months each. For residents of Vermont the total fees are $330, $330, $300 and $325 for each of the four years, respectively. Nonresidents are charged an additional $75 each year. The Dean is Dr. James N. Jenne. The total registration for 1929-1930 was 156; graduates, 30. The next session begins Sept. 19, 1930, and ends June 15, 1931.

VIRGINIA

Students desiring to practice in Virginia must be graduates of medical colleges which require for admission two years of collegiate work, including courses in physics, chemistry, biology and a modern language, preferably German, in addition to a four-year high school education.

Charlottesville

UNIVERSITY OF VIRGINIA DEPARTMENT OF MEDICINE.—Organized in 1827. Classes were graduated in 1828 and in all subsequent years except 1865. Co-educational since the session 1920-1921. It has a faculty of 31 professors and 38 lecturers, instructors, assistants, etc., a total of 69. The requirements for admission are the completion of a four-year high school course, or its equivalent, and two years of college work devoted to English, mathematics, chemistry, physics and biology. For residents of Virginia the total fees for the four years, respectively, are $290, $290, $265 and $255. Nonresidents are charged an additional $20 each year. The Dean is Dr. James C. Flippin. The total registration for 1929-1930 was 245; graduates, 57. The one-hundred-seventh session begins Sept. 18, 1930, and ends June 16, 1931.

Richmond

MEDICAL COLLEGE OF VIRGINIA, Twelfth and Clay Streets.—Organized in 1838 as the Medical Department of Hampden Sydney College. Present title was taken in 1854. In 1913 the University College of Medicine was merged. In 1914 the North Carolina Medical College was merged. Co-educational since 1918. Classes were graduated in 1839 and in all subsequent years. It has a faculty of 54 professors and 84 lecturers, instructors, etc., a total of 143. The requirements for admission is a four-year high school education and in addition two years of collegiate work, including courses in physics, chemistry, biology and English. The course embraces four years of eight months each. Total fees for the four years, respectively, are $307.50, $307.50, $292.50 and $322.50. Nonresidents are charged an additional $100 the first year and $50 each succeeding year. The Acting Dean is Dr. Lee E. Sutton, Jr. The total registration for 1929-1930 was 366; graduates, 95. The ninety-third session begins Sept. 16, 1930, and ends June 2, 1931.

WEST VIRGINIA

Students who desire to practice medicine in West Virginia must complete, in addition to a high school education, two years of collegiate work, including courses in physics, chemistry and biology, and German or French, before entering on the study of medicine.

Morgantown

WEST VIRGINIA UNIVERSITY SCHOOL OF MEDICINE.—Organized in 1902, and gives only the first two years of the medical course. Co-educational since organization. Two years of college work is required for admission, and the Bachelor's degree will be granted to those who finish the two years in medicine. Session extends through nine months. The faculty numbers 10 professors and 10 lecturers, instructors, assistants, etc., a total of 20. Fees: for residents of the state, $115 each year; for nonresidents, $365. The Dean is Dr. John N. Simpson. The total registration for 1929-1930 was 110. The next session begins Sept. 11, 1930, and ends June 9, 1931.

WISCONSIN

Students intending to practice medicine in Wisconsin, prior to entering a medical school, must complete, besides a four-year high school course, two years of collegiate work, including courses in physics, chemistry, biology and German or French. In addition to their four-year course in medicine they must complete also a year's internship in a hospital.

Madison

UNIVERSITY OF WISCONSIN MEDICAL SCHOOL, 412 North Charter Street.—Organized in 1907. Gave only first two years of the medical course until 1925, when the clinical years were added. Co-educational since organization. For matriculation at least two years in a college of arts and science or an equivalent training are required, including one year of Latin, a reading knowledge of French or German, and at least a year's work in physics, chemistry and biology. It has a faculty of 58 professors and 58 lecturers, instructors, etc., a total of 116. Tuition fees: $150 per year for nonresidents of Wisconsin. Incidental and laboratory fees for both resident and nonresident students average about $150 per year. The Dean is Dr. Charles R. Bardeen. The registration for 1929-1930 was 304; graduates, 38. The twenty-third session begins Sept. 24, 1930, and ends June 22, 1931.

Milwaukee

MARQUETTE UNIVERSITY SCHOOL OF MEDICINE, 638 Fourth Street.—Organized in December, 1912, by the merger of the Milwaukee Medical College and the Wisconsin College of Physicians and Surgeons. Co-educational since organization. It has a faculty of 161. The entrance requirements are two years of college work, including courses in physics, chemistry, biology, and a modern foreign language. The curriculum covers four years of eight and a half months each, and one year's internship in an approved hospital. The fees for the four years, respectively, are $364, $354, $354 and $339. The registration for 1929-1930 was 265; graduates, 54. The nineteenth session begins Sept. 29, 1930, and ends June 10, 1931.

PHILIPPINE ISLANDS

Manila

UNIVERSITY OF THE PHILIPPINES COLLEGE OF MEDICINE, 547 Herran Street, Ermita, Manila.—Organized in 1907 as the Philippine Medical School, under the support of the government of the Philippine Islands. In 1910 the title was changed to University of the Philippines College of Medicine and Surgery. Present title "College of Medicine" in 1923. The faculty includes 47 professors and 45 lecturers, assistants, etc., a total of 92. A two-year collegiate course, French or German, is required for admission. The course extends over five years. In the fifth year the students serve as interns in the Philippine General Hospital. The fees for the four years, respectively, are $101.75, $84.25, $64.25 and $69.25. The Dean is Dr. Fernando Calderon. The total registration for 1928-1929 was 360; graduates, 31. The twenty-third session began June 10, 1929, and ended March 24, 1930.

UNIVERSITY OF ST. THOMAS FACULTY OF MEDICINE AND SURGERY, Manila.—University founded by papal decree in 1587. Medical department added in 1871. The faculty includes 28 professors and 23 assistants, instructors, etc., a total of 51. A two-year collegiate course is required for admission. The course of study is five years, including an internship in a hospital. The registration for 1928-1929 was 896; graduates, 61. The Dean is Dr. Jose L. de Castro.

CANADA

The Dominion of Canada has nine medical colleges, which provide either a six-year course, including courses in physics, chemistry and biology, or a five year medical course with one premedical year. This course is equal to that in the medical schools of the United States which require two years of college work for admission, including the science courses named.

Alberta

UNIVERSITY OF ALBERTA FACULTY OF MEDICINE, Edmonton.—Organized in 1913. Co-educational since organization. Has given the complete six-year medical course since 1924. The faculty includes 39 professors and 39 instructors, assistants, etc., a total of 78. Fees for each year are $220. The Dean is Dr. Allan C. Rankin. The registration for 1929-1930 was 169; graduates, 20. The eighteenth session begins Sept. 26, 1930, and ends May 15, 1931.

Manitoba

UNIVERSITY OF MANITOBA FACULTY OF MEDICINE, Corner of Emily and Bannatyne, Winnipeg.—Organized in 1883 as Manitoba Medical College; first class graduated in 1886, and a class graduated each subsequent year. The college transferred all its property to the University of Manitoba in 1919 and assumed the present title. Co-educational since organization. The faculty includes 47 professors and 84 instructors, assistants, a total of 135. The total fees for the five years, respectively, are $225, $250, $260, $260 and $120. Matriculation requirements include two years of college work in the faculty of Arts and Science of a recognized university subsequent to the complete high school course required for entrance to the latter. The course extends over five years of eight months each. The Dean is Dr. S. Willis Prowse. Total registration for 1929-1930 was 228; graduates, 47. The next session begins Sept. 29, 1930, and ends May 26, 1931.

Nova Scotia

DALHOUSIE UNIVERSITY, FACULTY OF MEDICINE, Halifax, N. S.—Organized in 1867. Incorporated as the Halifax Medical College in 1875. Reorganized as an examining faculty, separate from the Halifax Medical College, in 1885. In 1911, in accordance with an agreement between the Governors of Dalhousie University and the Corporation of the Halifax Medical College, the work of the latter institution was discontinued and a full teaching faculty was established by the University. By an arrangement between Dalhousie University and the Provincial Medical Board of Nova Scotia, the final professional examinations are conducted conjointly by the university and the board, and candidates may qualify at the same time for their academic degrees and the provincial license. First class graduated in 1872. Co-educational since 1871. It has a faculty of 25 professors and 39 demonstrators, lecturers, etc., a total of 64. Requires for matriculation two years of Arts and a graded course of five years. The fees are $250 each year. The total registration in regular classes for 1929-1930 was 162; graduates, 19. The Dean is Dr. John Stewart. The next session begins Sept. 9, 1930, and ends May 2, 1931.

Ontario

UNIVERSITY OF TORONTO FACULTY OF MEDICINE, Toronto.—Organized in 1843 as the Medical Faculty of King's College. Abolished in 1853. Reestablished in 1887. In 1902 it absorbed Victoria University, Medical Department, and in 1903 absorbed Trinity Medical College. Co-educational since 1903. The course of study covers six years of eight months each, the first two being devoted largely to physics, chemistry, biology and cultural courses in history, science and English. It has a faculty of 60 professors and 202 lecturers, associates, etc., a total of 262. The fees are $171 for the first year; for the second, $220; $300 for the third year; $220 for the fourth and fifth years, and $244 for the sixth year. The Dean is Dr. Alexander Primrose. The total registration for 1929-1930 was 734; graduates, 110. The next session begins Sept. 30, 1930, and ends May 23, 1931.

QUEEN'S UNIVERSITY FACULTY OF MEDICINE, Kingston.—Organized 1854, first class graduated in 1855, and a class graduated each subsequent year. The faculty was originally a department of the university, but a separation took place in 1866, when the school was conducted under the charter of the Royal College of Physicians and Surgeons at Kingston. In 1892 the school again became a part of Queen's University. The faculty numbers 54. The fees for the six years are, respectively, $171, $179, $179, $204, $204 and $234. The last includes the fee of $30 for the M.D., C.M. degrees. The course covers six years of thirty teaching weeks each, the first including courses in physics, chemistry, biology, history or economics or English. The total registration in 1929-1930 was 296; graduates, 49. The Dean is Dr. Frederick Etherington. The next session begins Sept. 24, 1930, and ends May 27, 1931.

UNIVERSITY OF WESTERN ONTARIO MEDICAL SCHOOL, London, Ontario.—Organized in 1881 as the Western University Faculty of Medicine; first class graduated in 1883, and a class graduated each subsequent year. Present title in 1923. The medical school has been under the control of the Board of Governors of the University of Western Ontario since 1913. Co-educational since 1913. The faculty numbers 71. Two years of premedical college work, including courses in physics, chemistry and biology, is required for admission to a four year medical course—all of which is referred to as a six year medical course. The total fees for the last four years, respectively, are $200, $200, $208 and $233. The Dean is Dr. A. B. Macallum. Total registration for 1929-1930 was 148; graduates, 30. The next session begins Sept. 23, 1930, and ends May 29, 1931.

Montreal

MCGILL UNIVERSITY, FACULTY OF MEDICINE, 3640 University Street, Montreal.—Founded 1824 as Montreal Medical Institution; became the Medical Faculty of McGill University in 1829; first class graduated under the university auspices in 1833. No session between 1836-1839 owing to political troubles. In 1905 it absorbed the Faculty of Medicine of the University of Bishop College. Co-educational since 1919. The course consists of three premedical years, and five medical years of eight months each, the fifth being a year of hospital work. The faculty consists of 66 professors and 130 lecturers, etc., a total of 196. The total fees for each of the five medical years are $267. The total registration for 1929-1930 was 469; graduates, 85. The Dean is Dr. C. F. Martin. The next session begins Sept. 17, 1930, and ends May 29, 1931.

UNIVERSITY OF MONTREAL, FACULTY OF MEDICINE, 1265 St. Denis Street.—Organization in 1843, incorporated in 1845 as the Montreal School of Medicine and Surgery. In 1891, by act of Parliament, the Medical Faculty of Laval University (organized in 1878) was absorbed. Present name by Act of Parliament in 1920. A class was graduated in 1843 and in each subsequent year. One woman student admitted in fall of 1925. The faculty numbers 105. The course covers one premedical and five medical years. The total fees for each of the five years, respectively, are $225, $207, $243 and $227. The Dean is Dr. Louis De Lotbiniere Harwood. The Vice-Dean and Director of Studies is Dr. Telesphore Parizeau. The total registration for 1929-1930 was 277; graduates, 42. The next session begins Sept. 15, 1930, and ends June 15, 1931.

Quebec

LAVAL UNIVERSITY FACULTY OF MEDICINE, Quebec.—The Quebec School of Medicine, organized in 1848, became in 1852 the Medical Department of Laval University; first class graduated in 1855, and a class graduated each subsequent year. The faculty numbers 64. The fees for each of the medical years are $160, $170, $160, $160 and $180. The course covers one premedical year, including preliminary courses in physics, chemistry and biology, and five medical years. The Dean is Dr. Arthur Rousseau, Quebec. Total registration for 1929-1930 was 251; graduates, 46. The next session begins Sept. 9, 1930, and ends in June, 1931.

HOSPITAL INTERN YEAR

Required by Medical Colleges

Thirteen medical colleges have adopted the requirements of a fifth year to be spent by the student as an intern in an approved hospital or in other acceptable clinical work before the M.D. degree will be granted. These colleges and the years when the requirement became effective for matriculants and graduates are as follows:

	Affects Matriculants	Affects Graduates
University of Minnesota Medical School	1910-11	1915
Stanford University School of Medicine	1914-15	1919
Rush Medical College (University of Chicago)	1914-15	1919
University of California Medical School	1914-15	1919
Marquette University School of Medicine	1915-16	1920
Northwestern University Medical School	1915-16	1920
University of Illinois College of Medicine	1917-18	1922
Loyola University School of Medicine	1917-18	1922
Detroit College of Medicine and Surgery	1919-20	1924
University of Cincinnati College of Medicine	1922-23	1923
College of Medical Evangelists	1922-23	1927
Ogden Grad. School of Med. (U. of Chicago)	1925-26	1930
University of Oklahoma School of Medicine	1928-29	1933

Required by Licensing Boards

The hospital intern year has been adopted as an essential qualification for the license to practice in fourteen (counting Alaska Territory and District of Columbia) states, becoming effective in different years, as follows:

State Board of	Affects Student Matriculants	Affects All Applicants
Pennsylvania	1909-10	1914
New Jersey	1911-12	1916
Alaska	1912-13	1917
Rhode Island	1913-14	1918
North Dakota	1913-14	1918
Washington	1914-15	1919
Michigan	1917-18	1922
Illinois	1918-19	1923
Delaware	1919-20	1924
Iowa	1919-20	1924
South Dakota	1920-21	1925
Utah	1921-22	1926
Wisconsin	1922-23	1927
District of Columbia	1924-25	1930

The requirements both by medical schools and by state boards are overwhelming if not unanimously for the rotation service in general hospitals.

NATIONAL BOARD OF MEDICAL EXAMINERS

Recognition of Certificates

Holders of certificates of the National Board of Medical Examiners are registered without further examination in forty states and three territories as follows:

Alabama	Iowa	New Jersey	South Carolina
Arizona	Kentucky	New Mexico	South Dakota
California	Maine	New York	Tennessee
Canal Zone	Maryland	North Carolina	Utah
Colorado	Massachusetts	North Dakota	Vermont
Connecticut	Minnesota	Ohio	Virginia
Delaware	Mississippi	Oklahoma	Washington
Georgia	Missouri	Oregon	West Virginia
Hawaii	Nebraska	Pennsylvania	Wisconsin
Idaho	Nevada	Porto Rico	Wyoming
Illinois	New Hampshire	Rhode Island	

THE ASSOCIATION OF AMERICAN MEDICAL COLLEGES

The requirements for admission to and graduation from colleges holding membership in this association are 15 units of high school work and two years (60 semester hours) of college work.

CURRICULUM: The entire course of four years shall consist of not less than 3,600 hours, and shall be grouped in divisions and subdivided into subjects, each division to be allotted approximately the time, on a percentage basis, as shown in the following schedule:

1. Anatomy, including embryology and histology	14	–18½%
2. Physiology	4½	– 6 %
3. Biochemistry	3½	– 4½%
4. Pathology, bacteriology and immunology	10	–13 %
5. Pharmacology	4	– 5 %
6. Hygiene and sanitation	3	– 4 %
7. General medicine (neurology and psychiatry, pediatrics, dermatology and syphilis)	20	–26½%
8. General surgery (orthopedic surgery, urology, ophthalmology, otolaryngology, roentgenology)	13	–17½%
9. Obstetrics and gynecology	4	– 5 %
	76	– 100%
Electives	24	– 0 %

ENTRANCE REQUIREMENTS OF MEDICAL COLLEGES

Seventy-six medical schools are now requiring, as a minimum for entrance, *two years* or more of work in colleges of liberal arts approved by the Council on Medical Education and Hospitals in addition to a four-year high school education, and voluntarily submit reports to the Council by which the enforcements of these requirements can be verified. The years when each college puts into effect, respectively, the one-year and the two-year requirements, and the rating of each college, are as follows:

College	One Year	Two Years	College Rating
ALABAMA			
University of Alabama School of Medicine	1914	1915	A
ARKANSAS			
University of Arkansas School of Medicine	1915	1918	A
CALIFORNIA			
College of Medical Evangelists	1914	1915	A
Stanford University School of Medicine[1]	....	1909	A
University of California Medical School[1]	....	1905	A
Univ. of Southern California School of Medicine*	....	1928	..
COLORADO			
University of Colorado School of Medicine	....	1910	A
CONNECTICUT			
Yale University School of Medicine[1]	....	1909	A
DISTRICT OF COLUMBIA			
Georgetown University School of Medicine	....	1912	A
George Washington University Medical School	1914	1918	A
Howard University School of Medicine	1910	1914	A
GEORGIA			
Emory University School of Medicine, Atlanta	1914	1918	A
University of Georgia Medical Department	1914	1918	A
ILLINOIS			
Loyola University School of Medicine	1915	1918	A
Northwestern University Medical School	1908	1911	A
University of Chicago, Rush Medical College[2]	....	1904	A
University of Chicago, Ogden Graduate School of Medicine[2]	....	1924	A
University of Illinois College of Medicine	1913	1914	A
INDIANA			
Indiana University School of Medicine	1909	1910	A
IOWA			
State University of Iowa College of Medicine	1909	1910	A
KANSAS			
University of Kansas School of Medicine	....	1909	A
KENTUCKY			
University of Louisville School of Medicine	1914	1918	A
LOUISIANA			
Tulane University of Louisiana School of Medicine	1910	1918	A
MARYLAND			
Johns Hopkins University School of Medicine[3]	....	1893	A
University of Maryland School of Medicine and College of Physicians and Surgeons	1914	1918	A
MASSACHUSETTS			
Boston University School of Medicine[1]	1914	1916	A
Harvard University Medical School	....	1900	A
Tufts College Medical School	1914	1918	A
MICHIGAN			
Detroit College of Medicine and Surgery[1]	1914	1918	A
University of Michigan Medical School[1]	....	1909	A
MINNESOTA			
University of Minnesota Medical School	....	1907	A
MISSISSIPPI			
University of Mississippi School of Medicine	1914	1918	A
MISSOURI			
St. Louis University School of Medicine	1910	1918	A
University of Missouri School of Medicine[1]	1906	1910	A
Washington University Medical School[1]	1910	1912	A
NEBRASKA			
Creighton University School of Medicine	1914	1918	A
University of Nebraska College of Medicine	1908	1909	A
NEW HAMPSHIRE			
Dartmouth Medical School[1]	....	1910	A
NEW YORK			
Albany Medical College	1914	1918	A
Columbia University College of Phys. and Surg.	....	1910	A
Cornell University Medical College[3]	....	1908	A
Long Island College Hospital	1914	1918	A
New York Homeo. Med. Coll. and Flower Hospital	1915	1919	A
Syracuse University College of Medicine	1909	1910	A
University and Bellevue Hospital Medical College[3]	1912	1918	A
University of Buffalo School of Medicine	1914	1918	A
Univ. of Rochester School of Med. and Dentistry[1]	....	1925	A
NORTH CAROLINA			
Wake Forest College School of Medicine	....	1908	A
University of North Carolina School of Medicine	1910	1917	A
Duke University School of Medicine	....	1930	A
NORTH DAKOTA			
University of North Dakota School of Medicine	....	1907	A
OHIO			
Ohio State University College of Medicine	1914	1915	A
University of Cincinnati College of Medicine	1910	1913	A
Western Reserve University School of Medicine[3]	....	1901	A
OKLAHOMA			
University of Oklahoma School of Medicine	1914	1917	A
OREGON			
University of Oregon Department of Medicine[1]	1910	1915	A
PENNSYLVANIA			
Hahnemann Medical College and Hospital	1914	1917	A
Jefferson Medical College[1]	1914	1917	A
Temple University School of Medicine[1]	1914	1918	A
University of Pennsylvania School of Medicine[1]	1909	1910	A
University of Pittsburgh School of Medicine	1911	1913	A
Woman's Medical College of Pennsylvania	1914	1915	A
SOUTH CAROLINA			
Medical College of the State of South Carolina	1914	1916	A
SOUTH DAKOTA			
University of South Dakota School of Medicine	1908	1909	A
TENNESSEE			
Meharry Medical College	1914	1918	A
Vanderbilt University School of Medicine[3]	1914	1918	A
University of Tennessee College of Medicine	1914	1918	A
TEXAS			
Baylor University College of Medicine	1913	1918	A
University of Texas School of Medicine	1910	1917	A
UTAH			
University of Utah School of Medicine[1]	1909	1910	A
VERMONT			
University of Vermont College of Medicine	1912	1918	A
VIRGINIA			
Medical College of Virginia	1914	1915	A
University of Virginia Department of Medicine	1910	1917	A
WEST VIRGINIA			
West Virginia University School of Medicine	1911	1917	A
WISCONSIN			
Marquette University School of Medicine	1913	1915	A
University of Wisconsin Medical School	....	1907	A

Total, 76.

* This school is as yet unclassified.

1. Require three years of college work for admission.
2. Require graduation from a college of arts and sciences.
3. Require three years of college work for admission, with the additional requirement that the student must secure the bacealaureate degree on completion of one year of work in the medical school.

COUNCIL ON MEDICAL EDUCATION AND HOSPITALS,
N. P. COLWELL, Secretary.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, AUGUST 16, 1930

MEDICAL EDUCATION IN THE UNITED STATES

This week, for the thirtieth consecutive year, THE JOURNAL publishes statistics regarding medical education in the United States. Since 1905, the collection and publication of the reports on medical education and licensure have been in charge of the Council on Medical Education and Hospitals. During these years, medical education has shown a tremendous improvement over conditions existing in 1900. This year the report has been enlarged to include statistics not only of premedical and medical education but also in regard to the instruction provided for interns.

Early in its work the Council found that no national supervision or control had ever been placed over either general or professional education, since the constitution of the United States had left such matters to the state governments. With a few exceptions also it was found that the states had not assumed such authority, nor had any supervision or control been provided for educational institutions after they had been chartered. Consequently the medical schools were multiplied out of all proportion to the increase in population, and by 1900 the United States had about half of the world's supply.

THE MEDICAL PROFESSION ATTEMPTS IMPROVEMENT

In the absence of any national legal control, therefore, the function of regulating medical education naturally devolves on that portion of the public which is in best position to recognize the needs. The American Medical Association had some realization of these needs when it was originally organized in 1847 and its main object was stated as "the improvement of medical education in the United States." It was not until it was reorganized in 1902, however, that more active efforts toward improvement were instigated. In the latter year the county and state medical associations were made constituent parts of the national organization. At that time, also, the House of Delegates was created to look after the business of the profession and to originate its policies. As one of its standing committees the Council on Medical Education was created in 1904. Its work is now fairly well known, but some of the results may be noted in the charts published this week.[1]

APPROVED COLLEGES FOR PREMEDICAL EDUCATION

In order to aid the deans in their enforcement of the higher requirements of premedical education, the Council has endeavored in the last fifteen years to ascertain which of the high schools and, later, which of the colleges were considered worthy of bearing those names. In 1915, when the medical schools were expected to require college work for admission, the Council published its first list of approved colleges, using as its authority the lists of colleges that were approved by the district associations of colleges and secondary schools. Such a list was greatly needed in order that prospective medical students as well as deans of medical schools might distinguish between the worthy and the unworthy colleges.

STATISTICS REGARDING PREMEDICAL SCHOOLS

This year is particularly favorable for presenting statistics regarding the premedical qualifications of the students, because all medical schools are now requiring two or more years of college work for admission and, with one exception, are rated as acceptable medical schools. These statistics (page 497) are based on the individual histories prepared by the medical students individually and were furnished through the courtesy of the deans of the medical schools.

The first table (A) gives a list of the colleges, junior colleges and other institutions of college grade from which the students who began the study of medicine in the fall of 1929 had secured their premedical training. The length of time the students were enrolled is also shown and whether or not they obtained degrees.

The agencies that have approved the colleges are indicated by certain initial letters, and the basis of the approval is the "List of Approved Colleges of Arts and Sciences" compiled by the Council on Medical Education and Hospitals and revised to Aug. 15, 1929. Several of the colleges named have later been approved by their district associations.

Another table (B) shows for each medical school the number of students admitted in the fall of 1929 who came from colleges which were approved by the several district associations of colleges and secondary schools whose methods are considered thorough and reliable by the Council on Medical Education and Hospitals. In the opinion of the Council, each of these district associations covers a large enough territory and represents a sufficiently large organization of college educators to be free from local, political, sectarian or denominational influences and are therefore in good position to be regarded as efficient and reliable.

1. Chart 1, page 507; chart 2, page 508, and the life chart of medical schools, pages 510 to 513.

The statistics have revealed a situation far more favorable than was anticipated at the time the tabulation was begun. The practically unanimous action of the deans in the upholding of satisfactory standards in both premedical and medical work is shown by the fact that, of the 6,457 students admitted last fall to the freshman classes, the credentials of 5,916, or 91.6 per cent, were obtained in colleges that have been approved by the standardizing agencies whose methods and qualifications have been recommended as reliable by the Council on Medical Education and Hospitals. This left only 541, or 8.4 per cent, whose credentials came from colleges not approved by the agencies recommended by the Council.

The number of students coming from other than approved schools might have been much smaller had the junior colleges been more generally investigated for approval by the district associations of colleges and secondary schools. Of the 125 junior colleges from which students obtained their premedical training, therefore, it may be that more than forty-one of the junior colleges deserve to be reported as approved.

Of the 453 students referred to as having come from nonapproved institutions, it is found that 166 had obtained from the colleges they attended baccalaureate degrees or other higher credits, leaving only 193, or 3 per cent of all students, who presented a bare minimum of sixty semester hours obtained in colleges which were not vouched for by any of the agencies endorsed by the Council.

It should be noted that the deans have found some students so unusually well qualified that they were accepted and the Council has been furnished with statements setting forth the particular reasons why the exceptions were made.

It is interesting to note that the agencies which have established lists of approved colleges that are considered reliable are independent agencies of colleges which, like the American Medical Asociation, have voluntarily provided standards and the supervision over their membership that are deemed necessary, as they have not been provided by the national government.

A list of colleges approved for premedical education was essential before the standards of medical schools could be assured. At the same time it has proved to be of tremendous assistance to deans of medical schools and particularly to prospective medical students, who naturally desire that their training shall have been obtained in colleges whereby credit for the work that they have done will be accepted for admission to the medical school.

ADMINISTRATION OF FIXED STANDARDS

From the beginning of its work, the Council on Medical Education and Hospitals has consistently held to the principle that "no one of its rules, regulations or essentials should be administered so rigidly as to work an injustice to any properly qualified student."

In connection with the efforts to administer the standards essential in premedical education, another principle is respectfully suggested:

"The essential requirements for the approval of colleges by the district associations of colleges and secondary schools or other associations are or should be so administered as to render full justice to any worthy educational institution of college grade regardless of its local, sectarian, political or denominational connections."

PROPORTION OF PHYSICIANS TO POPULATION

Attention is called to chart 2, page 508, which gives for forty-one countries the number of physicians in proportion to the population. Note that the United States has more physicians in proportion to population than any other country in the world.

LIFE CHART OF MEDICAL COLLEGES

In this issue of THE JOURNAL on pages 510-513 is presented a life chart of medical schools similar to that which was published in THE JOURNAL of Aug. 23, 1913, on pages 578-581, giving a life line for each medical school of consequence which was deemed worthy of being so recorded. The chart published this week is brought up to 1930 and is particularly interesting since it covers the twenty-five years during which the number of medical schools was reduced to seventy-six, the present number. It graphically reveals the fact that the reduction of medical schools was largely through a merging of the medical schools into a smaller number of undoubtedly better equipped medical schools.

MEDICAL STUDENTS AND GRADUATES

The statistics published in this issue show that the total number of medical students is still on the increase. There was a total of 21,597 medical students, an increase of 719 over last year, while of the medical graduates there were 4,565, or 119 more than last year. These are the largest numbers reported since 1909. Of the graduates also it is interesting to note that 3,211, or 70 per cent, of all graduates received baccalaureate degrees either prior to or during their course of medical study, as compared with only 15.3 per cent of the students graduating in 1910.

THE HOSPITAL INTERNSHIP

The hospital internship has become so essential to the proper education and training of the physician that fully nine tenths of the graduates of medical colleges seek one or more additional hospital years before entering practice on their own responsibility—whether required to or not. Hospitals that are approved for interns, therefore, are educational institutions. To meet advancing standards these hospitals have had to make changes involving time, effort and expense in order to qualify as intern hospitals. As results of these improvements, not only do these hospitals give more efficient instruction and training to young physicians but also

the patients benefit from the more efficient and scientific service.

The reports received from 1,491 physicians, which are summarized in this issue, show the value that is placed on the intern year by physicians who have served an internship recently and have since had time to try out its benefits in their practice. It shows not only that a curriculum is being evolved for the fifth, or hospital, year but also that the intern wants instruction and training above all else and that the physicians are expected to be teachers.

ACKNOWLEDGMENTS

In the presentation of the statistics published this year, our acknowledgments are due to the secretaries of the several different associations of colleges and secondary schools who have so courteously furnished us with reports of the liberal arts colleges which after careful investigation have been approved by them. To the deans of the various medical schools, our thanks are due for the extensive and complete reports regarding their student enrolments and their graduates. For the figures shown in regard to hospital internships, we express our appreciation to the 1,491 physicians for the reports of the 700 hospitals in which they secured their intern experience.

THE BLOOD PLATELETS AND THE SPLEEN

It has become generally accepted that the erythrocytes of the blood can be mobilized rather speedily so as to increase their number in the circulating medium of the body in response to changes of activity or unusual circumstances. The spleen seems to act as a reservoir for the red blood cells—a fact suspected in the middle of the last century but only lately put on the firm basis of experimental proof, notably through researches by Barcroft and his collaborators. After hemorrhage or exercise the spleen experiences a diminution of volume sufficient at times to supply an amount of blood equivalent to one fourth of the total blood volume. When poisoning with carbon monoxide decreases the oxygen-carrying power of the blood the spleen tends to contract, thereby discharging into the general circulation an extra supply of red blood corpuscles which have been held there.

Apparently the long disregarded spleen performs a similar function for the blood platelets. At any rate Field [1] has observed that, in the absence of this abdominal organ, influences that regularly tend to raise the platelet count of the blood are no longer effective. Emotional excitement tends to increase the number of both erythrocytes and platelets. It is not uncommon to find the latter increased rapidly by 200,000 or more per cubic millimeter of blood in animals as the result of unusual excitement. Field has demonstrated further that this increment does not ensue when the sympathetic system is removed or when the spleen has been either removed or denervated. The effects of emotion are thus probably exerted on the spleen through sympathetic innervation.

This information will tend to stimulate further the growing interest in the blood platelets. Their function still remains unduly obscure. Even their origin continues to be most uncertain, though they are no longer regarded as mere precipitates from the plasma—as physiologic artefacts, so to speak. The platelets are true formed elements of the blood and they unquestionably in some way promote the coagulation of shed blood. It is helpful to know something more about how they may be mobilized in emergencies. Incidentally, their association with the spleen adds further functional dignity to an organ that has long suffered the reputation of physiologic uselessness.

1. Field, Madeleine E.: The Effect of Emotion on the Blood Platelet Count, Am. J. Physiol. **93**: 245 (May) 1930.

MENINGITIS IN FILIPINOS ON AMERICAN SHIPS FROM THE ORIENT

Attention has previously been directed in these columns to the prevalence of meningitis on the Pacific Coast.[1] Geiger [2] has recently summarized the available knowledge, and further comment may be pertinent as to the transportation of cases from the orient and their development en route. President Hoover's executive order of June 21, 1929, and the regulations of the U. S. Public Health Service made effective in July of the same year drastically reduced the steerage capacity 75 per cent. Subsequently this capacity was increased to 50 per cent and has since remained unchanged. Not more than one transportation company was actually involved. This company specialized in transporting Filipinos and, as Geiger has shown, the racial susceptibility was high to the causative strains. Curiously, little if any meningitis has been reported from the Philippines (only three cases and two deaths in the Filipino concentration quartel for embarkation). This has led to the epidemiologic assumption that the interchange of travel or the large amount of legal and unrestricted migration from and to the Philippine Islands from the United States and the Hawaiian Islands may have produced an increased number of carriers or extended exposure to carriers. The meningitis situation, at least in various parts of the United States, was definitely showing a steadily mounting morbidity. Likewise, this was evidently true, particularly of the Pacific Coast and Rocky Mountain states.

The assumption that type strains peculiar to the orient were causative factors in the Filipino cases is not entirely borne out by the type strains isolated from such cases in California. Types one and three reported by Geiger have not heretofore been unknown in the

1. Meningitis Situation on the Pacific Coast, editorial, J. A. M. A. **92**: 2022 (June 15) 1929; **93**: 462 (Aug. 10) 1929.
2. Geiger, J. C.: Epidemic Cerebrospinal Fever on the Pacific Coast, California & West. Med. **32**: 322 (May) 1930.

United States and elsewhere. There appears to be no doubt that different strains of meningococcus of the same type may be active in epidemic and interepidemic periods but there is no evidence as to oriental type strain specificity in the Filipino cases. Information is now available from three ports, Honolulu, Seattle and San Francisco, for 1928, 1929 and 1930 to date, as to cases brought in on ships of the transportation company involved. For instance, San Francisco, in 1928, showed 9 cases and 3 deaths; in 1929, 58 cases and 22 deaths, and none in 1930 to date. Seattle showed none in 1928, 83 cases and 18 deaths in 1929, and 2 cases and 1 death in 1930. Honolulu, because of labor necessity and geographic location, bore the brunt of the outbreak, if it can be called such, in Filipinos. For instance, in 1928 there occurred 14 cases and 2 deaths; in 1929, 136 cases and 55 deaths, and in 1930, 17 cases and 4 deaths to date. The combined number of cases brought into these ports for the periods mentioned was 319 cases and 105 deaths, with a rather surprisingly low percentage case mortality of approximately 33. The largest number of cases occurring on any one ship en route was 43, and this number represents approximately 6 per cent of the total steerage capacity carried.

Apparently, any inimical conditions on these ships as to the control of meningitis were promptly corrected, as shown by the decidedly decreased incidence on the same ships with similar class steerage in 1930, or the diseases has passed to more fertile soil than the Filipinos. Thus, another chapter in meningitis has reached a quiescent period. The meningitis situation, perhaps more than any other, has directed attention to the need for careful selection of medical personnel carried on ships and their thorough training in the control of communicable diseases and in the technic of isolation.

Current Comment

UNIVERSITY OF MISSISSIPPI SCHOOL OF MEDICINE

Since early in July, many news reports have been received referring to sweeping changes in the teaching personnel of some educational institutions in Mississippi, including the state university and its medical school. Intimations also were not lacking that some or most of these changes were the result of political pressure. Whatever the cause of the changes made, the reports have aroused a feeling of uncertainty in the minds of many able teachers in the educational institutions of Mississippi, including some who have devoted many years to the training and welfare of the youth of that state. It seems unlikely that such wholesale attempts of partisan politics to invade educational institutions will be tolerated by the people of that state. It is important, indeed, that the honorable status which for many years has been upheld by these state institutions be maintained and that greater permanence and a more generous financial support be provided for their further extension and improvement. There is no reason why Mississippi should fail to provide for her institutions what is so generally being provided for in other states.

INFANTILE MARASMUS

The easiest way to venture an explanation of obscure clinical manifestations is to devise a nomenclature that will cloak our ignorance. Thus the words "idiosyncrasy" and "diathesis" often yield a satisfaction quite out of proportion to any fundamental implications that they may convey. Scarcely more helpful are the adjectives "disordered" or "abnormal" when they are applied to bodily functions. After all, a diagnosis of disordered heart rhythm or disordered peristalsis brings less comfort than solace to a suffering patient. Therefore it becomes the duty of the devotees of scientific medicine to seek at least to interpret the vague expressions that represent the uncertainties of human illness. This is what a group of clinical investigators in the Department of Pediatrics of the Cornell University Medical College have undertaken in connection with the pathogenesis of infantile marasmus. In the production of this familiar condition a dominant rôle has repeatedly been ascribed to an "abnormal energy metabolism." The New York observers [1] have already demonstrated that the basal metabolism, the energy metabolism following the ingestion of the principal foodstuffs, protein, carbohydrate and fat, and the intermediary metabolism of the latter food factors were all essentially normal even in severe grades of infantile marasmus. They point out that the remaining derangement of energy metabolism, which may be a contributing factor in maintaining the marasmic state, is an abnormally elevated metabolic response to muscular activity. The latest observations [2] involved infants in varying states of nutrition during the rest of sleep, during crying and during other activities. The results, as Wilson, Levine and Kelly [2] interpret them, afford no evidence that poorly nourished infants are more wasteful of energy than well nourished infants during periods of apparently similar activity. An abnormal energy metabolism accompanying activity, therefore, would not seem to be a consistent or important factor in maintaining the marasmic state. However, the observers found evidence to indicate that infants in poor nutrition cry and are otherwise active for longer periods of the day than subjects in good nutrition. This state of prolonged activity may render an excessive fraction of the energy of the ingested foodstuffs unavailable for purposes of growth. It may explain the persistently stationary weight of some marasmic infants who are apparently receiving and

1. Levine, S. Z.; Wilson, J. R., and Gottschall, Gertrude: The Respiratory Metabolism in Infancy and in Childhood: VIII. The Respiratory Exchange in Marasmus: Basal Metabolism, Am. J. Dis. Child. **35**: 615 (April) 1928. Wilson, J. R.; Levine, S. Z., and Gottschall, Gertrude: The Respiratory Metabolism in Infancy and in Childhood: IX. Carbohydrate Metabolism of Normal and of Marasmic Infants With and Without the Administration of Insulin, ibid. **36**: 470 (Sept.) 1928. Levine, S. Z.; Wilson, J. R., and Gottschall, Gertrude: The Respiratory Metabolism in Infancy and in Childhood: X. Specific Dynamic Action of Food in Normal and in Marasmic Infants, ibid. **36**: 740 (Oct.) 1928.

2. Wilson, J. R.; Levine, S. Z., and Kelly, Margaret: The Respiratory Metabolism in Infancy and in Childhood: XI. The Respiratory Exchange in Marasmus: Effect of Muscular Activity, Am. J. Dis. Child. **39**: 736 (April) 1930.

tolerating an adequate caloric intake without alimentary disturbance or parenteral infection. The fundamental defect that leads to the marasmic state probably involves a chronic inanition induced by repeated alimentary disturbances or by recurrent parenteral infections.

Association News

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts at 10 a. m. on Monday, Tuesday and Saturday, and at 9:45 on Thursday, over Station WBBM (770 kilocycles, or 389.4 meters).

The program for the week is as follows:

August 18. Ringworm.
August 19. Our Emotional Lives.
August 21. Dame Nature's School.
August 23. Linking School and Home.

Five minute health talks may be heard over the Columbia Broadcasting System daily from 1 to 1:05 p. m., daylight saving time.

The program for the week is as follows:

August 18. Food and Disease.
August 19. Protect Your Eyes.
August 20. Prevent Diphtheria.
August 21. What is Clean or Unclean?
August 22. What is Clean or Unclean?
August 23. Three Leaved Poison.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARKANSAS

Society News.—The Arkansas County Medical Society was addressed at DeWitt, July 15, by Drs. Charles E. Park, DeWitt, on "Diarrheas of Infancy"; Homer Dickens, DeWitt, "Management of Pregnancy," and Jasper E. Neighbors, Stuttgart, "Tannic Acid Treatment of Burns."——Dr. Walter J. Blackwood, Walcott, addressed the Craighead-Poinsett Medical Society, June 5, at Jonesboro, on infantile diarrhea.——The Arkansas County Medical Society was addressed at Stuttgart, June 10, by Dr. A. B. Jemison, on "The Scope of County Health Work."——Drs. Michael S. Picard and Guy A. Caldwell, Shreveport, addressed the Ouachita County Medical Society, June 5, on "The Crying Infant" and "Treatment of Wounds," respectively.

CALIFORNIA

Clinic for Periodic Health Examinations.—The Adult Health Center at the University of California Hospital Outpatient Department is conducting periodic examinations for persons who are not able to pay. The clinic is in charge of Dr. Dudley W. Bennett. The Adult Health Center, which has been in existence for six years, accepts persons from the age of 15 years. Follow-up work is done by visits to the patient's home. Examinations are given once a year on a day near the patient's birthday.

University News.—Dr. Charles Singer, lecturer in the history of medicine at the University of London, England, gave the second Herzstein Lectures under the auspices of Stanford University and the University of California, August 7-9, in Lane Hall, Stanford University School of Medicine, San Francisco. The titles of the lectures were: August 7, "Medieval and Modern Medicine," part I; August 8, "Medieval and Modern Medicine," part II, and August 9, "The Scientific Works of Leonardo da Vinci."

Licenses Revoked for Illegal Operations.—The state board of medical examiners reports that the license of Dr. Oscar W. de Vaughn, Oakland, was revoked, July 8, on a complaint charging illegal operation. The license of Rosa M. G. Boido, Los Angeles, to practice as a physician and surgeon in the state of California was revoked, July 8, based on a complaint and the conviction in the courts of Arizona about April 4, 1918, of alleged illegal operation. The bulletin of the Los Angeles Police Department, Aug. 5, 1929, has an article stating, "We hold felony warrant charging murder (as the result of an illegal operation performed) for Dr. Rosa G. Boido." On July 10, the license of Dr. Francis J. Bold, Whittier, was revoked, based on each of two complaints charging illegal operation.

CONNECTICUT

Camps Inspected by State Department of Health.—The state department of health is cooperating with the local health officials in checking up on summer camps of various kinds. These camps have in their charge thousands of children and adults. It is the aim of state authorities to protect camps against disease due to lax or incompetent management. The inspection comprises examinations of water supplies, sewage and refuse disposal, washing facilities, sleeping quarters, kitchens, food storage and milk supplies.

Society News.—At a recent meeting of the Association of Yale Alumni in Medicine, New Haven, Dr. Elliott P. Joslin, Boston, described the detailed study carried out by himself and associates in the follow-up of cases of diabetes treated in their clinic since 1898.——The New Haven Medical Association was recently addressed by Dr. Robert L. Levy, New York, on "Mild Coronary Thrombosis"; June 4, the association was addressed by Drs. Chester M. Van Allen, New Haven, and William A. LaField, Bridgeport, on the characteristic roentgenographic observations in cases of pulmonary atelectasis as determined by clinical and experimental study, and Dr. Israel E. Blodinger, New Haven, described the injection method in the treatment of varicose veins; the society was addressed, June 18, on "New Views of the Pathogenesis, Diagnosis and Treatment of Ulcer and Cancer of the Stomach, Cholelithiasis and Diseases of the Digestion Organs in General," by Dr. Angelo L. Soresi, New York.

ILLINOIS

Outbreak of Meningitis in Lake County.—As a result of an outbreak of spinal meningitis at a boys' camp at Fish Lake, north of Volo, 160 boys have been quarantined. Up to August 5, it is reported, three deaths had occurred.

New Hazard from Malaria.—According to Dr. Andy Hall, state health director, the state faces a new hazard from malaria. From epidemic foci previously free from the disease, case reports during July already exceed the prevalence of the total reported in that month of any previous year for more than a decade. During the first three weeks of July, 1930, seventy-nine cases were reported as against twenty-one for the whole of the month of July, 1929. In central Illinois, most of the cases have occurred among boys attending summer camps and tents along rivers and streams. Mosquitoes are manifestly becoming widely infected with malaria, Dr. Hall said. This situation exposes to malaria every person who is bitten by an infected mosquito.

Chicago

Car Equipped for Examination of Employees.—A railroad car equipped for physical examination of employees engaged in train operation and applicants for this service has been recently built by the Milwaukee Road. It will be operated under the supervision of the railroad's surgical department and will be used over the entire system to supplement the work now performed by the road's physicians and surgeons. The interior is divided into a series of compartments with equipment for complete physical examination, a roentgen-ray and other apparatus, and also a first aid room.

Northwestern Plans Another Hospital.—*Science* states that plans are being made at Northwestern University for a hospital at Chicago Avenue and Fairbanks Court which is said to be the culmination of more than eight years of negotiation for the complete reaffiliation of Wesley Memorial Hospital and Northwestern University. The main building will be eighteen stories high, having a tower which will extend twelve more stories, and will cost $5,000,000. It will have 600 beds. Its clinics, together with the facilities provided by Passavant Hospital, will form a complete medical center on McKinlock campus, capable of caring for nearly 1,000 patients. The new hospital will be largely devoted to patients from salaried and wage-earning families.

KENTUCKY

Society News.—The Harlan County Medical Society was recently addressed by Drs. Tom R. Barry, Knoxville, Tenn., on "Urology in General Practice," and Oliver W. Hill, Knoxville, on "Use of Whole Blood in Treatment of Measles."—— The Southwestern Kentucky Medical Society met in Bardwell, August 5, with the following program: "Head Injuries," Dr. Roy Glenwood Spurling, Louisville, and "Anhydremia," Dr. Edwin A. Stevens, Mayfield. —— The Christian County Medical Society met at Pembroke, July 15; Dr. Maurice L. Hughes, Clarksville, Tenn., read a paper on "Some Vascular Disturbances—Their Sequels and Treatment."

Hospital Affiliates with School of Medicine.—Raymond A. Kent, Ph.D., president, University of Louisville, announces the affiliation of the Children's Free Hospital with the school of Medicine. The hospital was organized in 1890 and has a bed capacity of eighty patients. The agreement provides that the medical staff be appointed by the board of directors of the hospital on nomination by the University of Louisville trustees. The university has granted the use of hospital equipment and laboratories for purposes of teaching and research. Dr. Philip F. Barbour is chief of staff. Dr. John Walker Moore, dean of the medical school, is a member of the executive committee, ex officio.

MASSACHUSETTS

Personal.—The commissioner, state department of mental diseases, announces the appointment of Dr. Earl K. Holt, Boston, as director of the division for the examination of prisoners under that department to succeed Dr. Winfred Overholser, who was made assistant commissioner of mental diseases.

State Hospitalization for the Tuberculous.—The new admission and isolation building at the North Reading State Sanatorium was dedicated, June 16. The exercises were presided over by the state commissioner of health. Dr. Henry D. Chadwick, Detroit, spoke on "Progress in Tuberculosis Control"; Dr. Frederick T. Lord, Boston, "Childhood Tuberculosis"; Dr. Carl C. MacCorison, the work of the North Reading Sanatorium. Mr. William N. Goodell, treasurer of the Lowell Tuberculosis Council, spoke on "Necessity of Popular Support If the Health Program of the State Department of Public Health Is to Succeed and Become Effective."

MINNESOTA

Personal.—Dr. Nels G. Mortensen, St. Paul, is reported to have been recently elected president of the Northwestern Medical Officers' Association. The membership is made up of World War medical officers who are in the seventh corps area.——Dr. Leo G. Rigler, Minneapolis, was the winner of the medal presented by the Southern Minnesota Medical Association for the best scientific exhibit at the state meeting held in Duluth.

Masseurs and the Title of Doctor.—The state board of medical examiners recently refused to renew the license of a masseur until he complied with the law prohibiting a masseur using the title "doctor." The indiscriminate use of the title doctor was one of the outstanding complaints made in the nonenforcement of the previous massage law and resulted in a repeal of that law at the 1929 session of the legislature. The state board of medical examiners has served notice that it intends to enforce the massage law as well as the medical practice act and the basic science law.

Southern Minnesota Meeting.—The annual meeting of the Southern Minnesota Medical Association will be held, August 25, at Mankato. Addresses will be given by Drs. Walter C. Alvarez, Rochester, on "The Art of Medicine"; Herbert W. Rathe, Waverly, Iowa, "Coronary Disease with Special Reference to Acute Coronary Accidents, Their Recognition and Treatment"; Ralph K. Ghormley, Rochester, "Backache from the Orthopedic Viewpoint"; Alphonse E. J. Sohmer, Mankato, "The Prostate Gland in a General Examination"; Moses Barron, Minneapolis, "Treatment of Bright's Disease"; Charles N. Hensel, St. Paul, "Nonmyxedematous Hypothyroidism"; Harry L. Parker, Rochester, "Epileptic Seizures, Their Relationship to Brain Tumor"; Sigurd Gunderson, LaCrosse, Wis., "Appendicitis, a Study of 100 Consecutive Cases," and Charles W. Mayo, Rochester, "The Importance of Toxic Goiter Complicating or Complicated by Other Conditions Requiring Surgical Interference." Special attention will be given to clinical demonstrations. The banquet will be addressed by Drs. William J. Mayo, Rochester; Samuel H. Boyer, Duluth; president of the Minnesota State Medical Association; William A. Rohlf, Waverly, president of the Iowa State Medical Association, and Edward Starr Judd, Rochester, Minn., President-Elect of the American Medical Association.

MISSOURI

Licenses Revoked and Restored.—The State Board of Health of Missouri revoked the license of Dr. Charles Lawrence Hyatt, Flat River, July 30, on a charge of criminal abortion. On the same date, Dr. Ottis Orville Ash, Moberly, was reinstated to good standing. Dr. Ash's license had been revoked March 12 for one year for unlawfully producing an abortion.

Dr. Haden Goes to Crile Clinic.—Dr. Russell L. Haden, Kansas City, has accepted the position as chief of medical service of the Crile Clinic, Cleveland. He has been professor of experimental medicine at the University of Kansas School of Medicine since 1923, and has conducted a private practice in Kansas City since 1921. After graduating from Johns Hopkins and serving as intern and resident house officer at the Johns Hopkins Hospital, he was appointed assistant resident physician and director of laboratories at the Henry Ford Hospital, Detroit. The Jackson County Medical Society recently extended a resolution of congratulation on Dr. Haden's appointment.

Society News.—The Kansas City Southwest Clinical Society was addressed, August 12, by Drs. Paul F. Stookey, on "Problems in Diagnosis of Secondary Syphilis of Special Interest to the General Practitioner"; Patrick H. Owens, "Pain in Contrast to Discomfort in Diagnosis of Abdominal Conditions," and John W. Duncan, Omaha, "Factors Influencing Surgical Morbidity and Mortality." —— The Nodaway County Medical Society was recently addressed by Dr. Frank J. Hall, Kansas City, on "Modern Bacteriology Useful to Practitioners of Medicine."——Dr. Luther O. Nickell, Moberly, addressed the Randolph-Monroe County Medical Society, June 10, on "Lower Alimentary Diseases."

NEW YORK

Poliomyelitis in Syracuse.—With the reporting of three new cases of poliomyelitis, July 27, to the department of health of Syracuse, the total is now fourteen cases.

Personal. — Dr. Harry A. Steckel, superintendent of the Newark State School, Newark, has been named head of the new state psychiatric hospital at Syracuse. Dr. Steckel assumed his duties as director, July 1, although the new hospital is not expected to be ready for opening until early in October.—— Dr. Allen W. Freeman, Baltimore, has been selected to make an intensive health study of Ontario County under the auspices of the State Charities' Aid Association's committee on tuberculosis and public health. He has made similar surveys of Steuben and Suffolk counties. Columbia County has been tentatively selected as the location of the fourth survey to be made by Dr. Freeman.——Dr. William W. Wright, for the last six years assistant superintendent, Utica State Hospital, July 1, began his duties as superintendent of Pilgrim State Hospital near Central Islip, Long Island. —— Dr. Paul B. Brooks, Albany, deputy state commissioner of health, was recently appointed by the state board of regents as a member of the state board of medical examiners for a term of three years.

New York City

Gifts to the Academy of Medicine.—Among the recent gifts to the New York Academy of Medicine are an anonymous donation of $10,000 to perpetuate the name of Dr. William S. Halsted, formerly professor of surgery at Johns Hopkins University, the income of which is to be used for the purchase of books on surgery or as directed by the trustees; $500 from Dr. Seth M. Milliken for the endowment fund; $10,000 from the Carnegie Fund for the use of the Press Relations Bureau during 1930-1931; this bureau also received $6,000 from the Milbank Memorial Fund. The Carnegie Fund gave $1,500 for the work of the governor's health commission; the Commonwealth Fund gave $47,500 for a study of infant mortality. A gift of $8,500 was received to be administered by the academy for the work of the National Committee on Medical Nomenclature, and a gift of $15,000 from the Altman Fund for the general purposes of the academy during the current year. The academy also received an unusual collection of busts of famous physicians in caricature from Miss Mary Hall Sayre, who also gave the surgical instruments formerly belonging to her father, Dr. Lewis A. Sayre. A bronze bust of Dr. Willard Parker was presented by his great granddaughter, Mrs. Laurence G. Payson, and an incunabulum, "Nicolaus Salernitanun," was donated by Abraham S. W. Rosenback, Ph.D. The academy also received a gift of $2,000 from Mrs. Elizabeth Cochran Bowen for the

Alexander Cochran Bowen Scholarship offered to a physician of either sex who had completed his service in a hospital in the metropolitan district which accepts charity patients. The scholarship provides a stipend of $1,900 for a year of foreign study. A special committee awarded the scholarship, June 16, to Dr. Helen J. Rogers, New York, who will study multiple sclerosis under the direction of Sir James Purves Stewart in London and at the Salpêtrière in Paris.

Personal.—Dr. William H. Guilfoy, after forty-five years of service in the department of health, has retired from duty as registrar of records, a position which he has filled since 1901. In recognition of his services, the board of health, July 15, passed a resolution in appreciation of Dr. Guilfoy's service. He is accredited with achieving a 100 per cent record in the reporting of births in this city since 1910. His department was among the first to adopt the international classification of causes of death and, as one of the delegates to the decennial international conference to revise this classification, he aided in its improvement.

NORTH CAROLINA

Pellagra on the Increase.—Dr. Charles O'H. Laughinghouse, executive secretary, state board of health, in his recent conference with officials of the U. S. Public Health Service in Washington, reported an alarming increase in the death rate from pellagra. He is said to have pointed out that the state is utterly and entirely without funds with which to combat the disease and that, unless the government can allocate some funds for pellagra treatment and prevention, help must come through voluntary sources. The state board of health reports that during the week of July 19 there were 301 new cases of pellagra, while during the week previous there were 222 new cases. In June there were 122 deaths, and in May 115 deaths from the disease. The total number of deaths for the first six months of this year from pellagra was 468 out of 1,442 cases reported. Dr. Laughinghouse estimates that at present there are 20,000 persons in the state suffering from the disease.

Duke University Opens Hospital.—The new 400 bed hospital at Duke University, Durham, was opened for patients, July 21, to be ready for the first session of the Duke Univer-

sity Medical School, July 31. The hospital constitutes an impressive unit in the development of the new Duke University campus. The university goes back to 1838 in its origin. The new hospital makes effective for the first time the hospitalization provisions of the indenture of trust, established by the late Dr. James B. Duke, when, on Dec. 11, 1924, he made an endowment of $10,000,000. The structure was erected at a cost of $4,000,000, leaving $6,000,000 for maintenance and operation. There are nearly 1,000 rooms in the new hospital, which consists of a series of wings of four main floors and a tower mounting to eight stories. The building will be utilized by 300 students of the medical school, intermediate diagnostic laboratories and the hospital. The structure covers 4 acres on a dominant site on the new 151 acres of woodland campus at the edge of the city of Durham. The new hospital has, in addition to standardized equipment, an electrical paging system, a brace and instrument shop, several semiprivate rooms of six cubicles each and a number of private five room clusters. The gallery of the auditorium will seat 250 students. The eleven operating and delivery rooms are lined with blue-gray tile. The extensive outpatient clinic includes a pediatric laboratory and a dental laboratory. M. E. Winston is superintendent of the hospital. In full operation, it will have 200 nurses. The professional staff includes 100 physicians and surgeons. Dr. Wilburt C. Davison is dean of the school of medicine. The new hospital, combined with the capacities of two other hospitals in Durham, will give the city a maximum capacity of 744 beds, all of which are available for teaching privileges to the Duke University College of Medicine.

TEXAS

Health at San Antonio.—Telegraphic reports to the U. S. Department of Commerce from sixty-five cities with a total population of thirty million, for the week ended July 26, indicate that the highest mortality rate (32.5) appears for San Antonio, and that the mortality rate for the group of cities as a whole was 12.6. The mortality rate for San Antonio for the corresponding week last year was 12.4 and for the group of cities, 10.8. The annual rate for sixty-five cities for the thirty weeks of 1930 was 13.1, as compared with the rate of 13.9 for the corresponding weeks of 1929. Caution should be used in the interpretation of weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits, or that they have a large Negro population, may tend to increase the death rate.

Medical and Surgical Association of the Southwest.—The annual meeting of the Medical and Surgical Association of the Southwest will be held in El Paso, November 6-8. Among other speakers will be Drs. Edward William Alton Ochsner, New York, on "Acute Craniocerebral Injuries"; Russell A. Hibbs, New York, "Joint Tuberculosis"; George R. Herrmann, New Orleans, illustrated lectures—"Diagnostic Criteria of Heart Disease" and "Treatment of Syphilitic Aortic Disease in the Last Stages"; Walter C. Alvarez, Rochester, Minn., "Practical Points in Treatment of Gastro-Intestinal Disease"; Philip H. Kreuscher, Chicago, "Fractures Near the Major Joints" and "Chronic Osteomyelitis"; Roy E. Thomas, Los Angeles, "Management of Lobar Pneumonia"; Robert S. Flinn, Prescott, Ariz., diabetes; Charles T. Sturgeon, Los Angeles, "Use of Sodium Amytal in Surgery," and Leroy S. Peters, Albuquerque, "Cauterization of Adhesions—Jacobaeus-Unverricht Method." Dr. Carl Jumper, Torreon, has been invited to represent northern Mexico.

WISCONSIN

Special Indian Clinic.—The Wisconsin State Board of Health and the Federal Bureau of Indian Affairs are planning to combine their forces for a special Indian clinic to be held in Forest County, August 26-28. This clinic will be held in conjunction with similar clinics held at Odanah, Red Cliff and Bayfield, in order to get a reasonable cross-section of the health of the Indians in Wisconsin.

Fined for Practicing Without License.—It is reported that "Dr." Fred Karnopp, 69, was recently fined $100 and costs at Manitowoc for practicing medicine without a certificate of license. The complaint was signed by Walter A. Drews, an investigator of the state board of health, who was treated by the "doctor." Karnopp is reported to have claimed that he believed that he was within the law so long as he did no surgery. He is said to have claimed to be the inventor of an electrical apparatus which, he said, cured him seventeen years ago and which he used in treatment of patients.

GENERAL

Society News.—At the annual meeting of the American Proctologic Society in Buffalo, recently, Dr. Dudley A. Smith, San Francisco, was elected president; Dr. Samuel E. Newman, St. Louis, vice president, and Dr. Curtice Rosser, Dallas, Texas, secretary, reelected. The 1931 meeting of the society will be held in Philadelphia prior to the meeting of the American Medical Association.

Decline in Birth Rates.—A comparison in a recent bulletin of the League of Nations of the infant mortality rates of cities of the world during the last four years shows that low birth rates prevailed. Swiss and German towns have low birth rates, and in some there was an excess of deaths over births. The effect of a further decline in birth rates is shown in the comparison of births in Berlin and other cities. In Berlin, the death rate in the past three years has exceeded the birth rate; in Munich the rates were the same in 1929, and in other cities the excess of births over deaths is decreasing. The birth rates in French cities are distinctly higher than those in Switzerland and Germany. In New York City, the margin between births and deaths is decreasing; twenty years ago this difference was 11 per thousand and last year it was less than 7 per thousand.

American Congress of Physical Therapy.—The ninth annual session of the American Congress of Physical Therapy will be held at St. Louis, September 8-12, with headquarters at the New Hotel Jefferson. The scientific program will be furnished, among others, by Drs. John R. Caulk, St. Louis;

Austin A. Hayden, Chicago; Alexius M. Forster, Colorado Springs; Luther A. Tarbell, Battle Creek, Mich.; Joseph N. Chausse, Montreal, Que., Canada; Albert F. Tyler, Omaha; Cleveland H. Shutt, St. Louis; Isaac Levin, New York; Ramon Castroviejo, Chicago, and Disraeli Kobak, Chicago. Special features to be presented are a conference on education in physical therapy and a symposium on tuberculosis and on the treatment of tonsils. Programs of the session and applications for the examination of technicians are to be secured from the executive secretary, American Congress of Physical Therapy, Suite 716, 30 North Michigan Avenue, Chicago.

CANADA

The World War Veterans' Allowance Act.—The World War Veterans' Allowance Act, which recently received the royal assent after passing the dominion house of parliament, will become effective, September 1. Under the new act, service in a theater of actual war entitles veterans to the benefit of old age pensions at the age of 60. Such service is presumed to have shortened their work expectancy by at least ten years. Single men have been given privileges under the act as well as married men, provided they are unemployed by reason of mental or physical disability or have attained the age of 60 years.

Personal.—Dr. John G. Fitzgerald, professor of hygiene and preventive medicine, University of Toronto Faculty of Medicine, has been appointed, it is reported, a member of the Health Committee of the League of Nations for a three year period.——Dr. Ward A. Woolner, Ayr, recently elected president of the Ontario Medical Association, was tendered a complimentary dinner by the physicians of Waterloo County. He is said to be the first village practitioner to head the Ontario Medical Association. He was presented with an address and an engraved ring.——Dr. Charles M. Bayne of Sydney, N. S., has been appointed health officer for the eastern health division of Nova Scotia.

Annual Meeting of British Medical Association.—The ninety-eighth annual meeting of the British Medical Association will be held in Winnipeg, August 25-29. The program includes the following presentation: "Filtrable Viruses and Practical Medicine," to be opened by Dr. Sam P. Bedson, London, with a clinical introduction by Lord Dawson; "The Functional Disorders of the Colon," to be opened by Dr. Edmund I. Spriggs, Ruthin Castle, North Wales; "Acute Poliomyelitis," Sir Farquhar Buzzard, Oxford; "Recent Advances in Thoracic Surgery," Dr. Edward W. Archibald, Montreal; "Surgery of the Sympathetic Nervous System," Dr. William J. Mayo, Rochester, Minn.; "Uses of Radium in Gynecology," Mr. Sidney Forsdike, London; "Treatment of Lymphatic Glands in Carcinoma of the Cervix," Dr. Malcolm Donaldson, London; "The Albuminuria of Pregnancy and Its Late Results," Mr. John Bright Banister, London; "Abnormal Mental and Nervous Conditions Associated with the Menopause," Drs. George Riddoch, London, and Clarence B. Farrar, Toronto; "Some Aspects of Prevention of Tuberculosis in Children," Dr. Maurice McPhedran, Philadelphia; "The Difference in Preoperative Action of Sodium-Amytal, Avertin, and Pernokton," Dr. Elmer I. McKesson, Toledo; "The Control of Trachoma," Mr. Nathaniel Bishop Harman, London; "The Treatment of Congenital Dislocation of the Hip," Dr. Herbert P. H. Galloway, Winnipeg; "The Factors Influencing Health in Canada," Dr. John J. Heagerty, Ottawa, Ont.; "Bacillus Coli Infections," Drs. Kenneth D. Wilkinson, Birmingham, and David N. Nabarro, London. Public meetings held at the Winter Club include Dr. Robert Hutchison, London, on "The Pursuit of Health"; Sir James W. Barrett, Melbourne, Australia, "Bush Nursing System," and Dr. Morris Fishbein, Editor of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, Chicago, "Food Fads and Follies."

FOREIGN

Personal.—It is announced by Dr. R. King Brown, editor, that Sir Leonard Hill and Dr. Walter J. Turrell, both of Oxford, have joined the honorary advisory editorial board of the *British Journal of Actinotherapy and Physiotherapy*. Sir Leonard Hill returns to the editorial board on his retiral from the National Institute for Medical Research.——Dr. Walter J. Dilling, dean, Liverpool University Medical Faculty and for several years head of the department of pharmacology, is reported to have been made professor of pharmacology.

Society News.—The Cancer Research Society of Japan has recently adopted a plan to establish a research institute for the active study of various problems of cancer. As the result of their effort to raise sufficient funds for building and equipment, the Imperial household made a grant of 10,000 yen. It is planned to raise a million yens for a research laboratory and hospital. It will have 2 grams of radium.——The twenty-fourth South African Medical Congress was held at Durban, July 21-26, at the Gale Street Schools. Special section meetings were held for the subjects of public health, surgery, obstetrics and gynecology. Among others, talks were given by Sir Edward Thornton, Pretoria, on "A Native Medical and Nursing Service for South Africa," and Dr. N. E. Porter, Johannesburg, "Parasitology of South Africa."——It is reported that Prof. Martin Hahn, director of the National Hygiene Institute, Berlin, was selected as new president of the International Association of Microbiology. Sir Almroth Wright was elected honorary president.

Radium Institute Delayed.—The Marie Curie Radium Institute of Warsaw, for which Madame Curie was given $50,000 in 1929 by a group of Americans, will not be able to open its doors until December. The radium was ordered last November. Sufficient interest on the money will accrue by December to purchase platinum screens for the radium when it becomes available. The Marie Curie Hospital was officially opened, July 10. The hospital, according to the *Lancet*, is the outcome of a development started by the London Association of the Medical Women's Federation in 1905 in order to provide radium treatment for women suffering from cancer and for the advancement of clinical research. It is staffed entirely by medical women and at present has thirty beds. More than 440 cases are said to have been treated since the clinic started. The support of the Medical Research Council and of the British Empire Cancer Campaign was enlisted, the *British Medical Journal* says, and a supply of radium, which now amounts to 1 gram, was obtained, the Marie Curie Hospital sharing it with three other hospitals.

Government Services

Resignations from the Navy

The following resignations from the navy have been announced: Lieuts. Andrew A. Love, effective August 13; William Brecher, effective August 3; Paul M. Fuller, effective August 9; Louis E. Gilje, effective August 11; Charles S. Gallaher and Charlie M. Mathias, effective August 12; Lieut. Harold E. Beasley, effective July 17; Lieut. Everett H. Dickinson, effective September 30.

Army Personals

The following changes of station in the army have been announced: Major Frank W. Young to duty at the station hospital, Fort Sam Houston, Texas, effective on completion of his present tour of foreign service; Capt. Arthur Morehouse proceeded to his home about July 31 to await retirement for the convenience of the government; Major Paul M. N. Kyle to duty at Walter Reed General Hospital, Army Medical Center, Washington, D. C., effective on completion of his present tour of foreign service; Lieut. William H. Lawton will sail from New York about October 10 for duty in the Hawaiian Department; Major Frank E. Winter will proceed to Fort Ringgold, Texas, about October 20 for duty; Major Ralph W. Newton will sail from New York about August 21 for San Francisco for duty in the Letterman General Hospital; Major Frank C. Griffis proceeded to his home about August 1 to await retirement for the convenience of the government; Lieut. Robert M. Allott is relieved from duty at Fitzsimons General Hospital, Denver, and will proceed to Washington, D. C., to the Army Medical School for a course of instruction; Major William D. Fleming will sail from New York about October 28 for the Philippine Department; on arrival at Manila, Major Fleming will report for duty as a member on the U. S. Army Medical Department Research Board; Major Arthur H. Nylen, on completion of his present tour of foreign service, will report for duty at Fort Slocum, New York; Col. Kent Nelson will sail from San Francisco about November 19 for duty in the Philippine Department; Majors Baxter R. Hunter and William A. Smith will sail from San Francisco about November 25 for duty in the Panama Canal Department; Major Jose C. Carballeira will sail from New York about October 23 for duty in San Juan, P. R.; Lieut. John A. Isherwood proceeded to Fort Banks, Massachusetts, about August 15, for duty; Lieut. Nuel Pazdral will proceed to Fort Brown, Texas, about November 5, for duty.

Foreign Letters

LONDON

(From Our Regular Correspondent)

July 26, 1930.

Representative Meeting of the British Medical Association: A Deeper Plunge into Medical Socialism

Though the British Medical Association will meet this year in Winnipeg, the representative meeting was held in London. It was of unusual importance because a decision had to be taken on the momentous question whether to take part in or to oppose a great extension of medical socialism. In a previous letter (May 17, p. 1612) a scheme brought forward by the council of the association to provide a medical service available for all classes was described. This would constitute a great expansion of the medical socialism already in existence in the form of the national health insurance act (which is confined to manual workers and employed persons earning small salaries), the medical treatment of school children, and child and maternity welfare schemes. England is now in a socialistic period and it is to socialism and its close ally (which is often confounded with it), trade unionism that most of her economic trouble is due. For this all the political parties are responsible —not only the avowed socialists, but also their opponents, who introduce socialistic measures because they are popular. Moreover, a socialistic government is now in office. The medical profession is predominantly conservative in politics, but the British Medical Association has come to the conclusion that the further development of medical socialism is inevitable and therefore has brought forward its scheme so as to be early in the field and mold, as far as possible, on lines acceptable to the profession, changes that must occur.

The chairman of the general medical service scheme committee, Dr. J. W. Bone, brought forward on behalf of the council a series of proposals. He pointed out that it was not the medical profession, still less the association, that was responsible for problems that had arisen. These had been gradually but actively evolving during the last twenty years. There had been in the country a constant demand for social services—and particularly for health service—of all kinds subsidized by the state. Indeed there had been competition between the three political parties to provide these services, and each government had added materially to the services already existing.

The proposals for a general medical service were brought forward grouped under eight fundamental principles. 1. The service must be directed to the prevention of disease no less than to the relief of individuals. 2. It must be based on the provision for every individual of a general practitioner or family physician. 3. A consultant service and all necessary specialist and auxiliary forms of diagnosis and treatment should be available, normally through the family physician. 4. The interposition of any third party between the physician and the patient, so far as actual medical attendance is concerned, shall be as limited as possible. (This is directed against control by the friendly societies, which existed in lodge practice before the passing of the national health insurance act). 5. In the control of the professional side of the service, the guaranteeing its quality and the discipline of the physicians, as much responsibility as possible should be placed on the organized medical profession. 6. In any arrangements for communal or subsidized or insurance medical service, the organized medical profession should be freely consulted from the outset on all professional matters. 7. Medical benefits of the present national insurance act should be extended so as to include the dependents of all persons now insured. 8. Medical and nursing facilities should be provided in institutions where the family physician may treat his patients who require these.

The association has approached the financing of the scheme with great diffidence, because it considers other bodies much more competent to deal with this complicated question. It has been calculated that extension of the present national health insurance to dependents of the insured would cost $47,500,000, a consultant and specialist service for the present insured $6,450,000, and laboratory aids $500,000. The association's estimate of the cost of its maternity scheme is $11,250,000. Against these figures is saving of certain public expenditure now made. The net increased expenditure is estimated at between $40,000,000 and $50,000,000. There was some opposition to the scheme, mainly on the ground that it interfered with private practice, against which it was argued that the matter was urgent and that there was a growing opinion throughout the country that medical services should be supplied to the bulk of the community. Several amendments were rejected and the scheme was carried by a large majority.

HOSPITAL POLICY

Voluntary hospitals (i. e., hospitals supported by voluntary subscriptions) are mainly used by workers and their dependents, but there is an urgent national demand that their benefits shall not be denied to any class and shall be available at reasonable rates for those who cannot meet the cost of private nursing homes and yet whose means are above the level of insured persons. The association has envisaged a system in which all the hospitals in an area will be grouped round a central or base hospital. The association could not approve specific contributory schemes for the provision of hospital benefit and thinks it undesirable that hospitals should undertake any insurance risk. An amendment that the current maximum scale be retained was moved. It was urged that the present contributory schemes were depriving physicians of private patients who could afford to pay their fees. The amendment was carried.

BIRTH CONTROL

On the subject of maternity and child welfare centers, the question of birth control was raised. On behalf of the medico-political committee it was moved that when advice on birth control is given it should be given on medical grounds alone and at the discretion of the medical officer in connection with any individual case, and not merely because it is asked for by the patient. An amendment that the medical officer in any maternity and child welfare clinic, equally with every other physician, has the right to advise either for or against the use of contraceptive methods, in accordance with his individual judgment and responsibility, was moved. In the discussion it was pointed out that the resolution did not touch the trouble that had been raised by local authorities who were out deliberately, through such organized centers, to instruct every woman in contraception. The association should not allow a physician to be dictated to as to treatment or advice that he should give to patients. The words "and should not be subject to dictation either by the patient or the authority which employed him in this matter" were therefore added to the amendment, which was carried.

THE PATENTING OF MEDICAL DISCOVERIES

On behalf of the council it was moved that it is ethically undesirable for a physician who makes an invention or discovery in the medical field to derive financial benefit from its sale. It was pointed out that the medical profession was by long tradition opposed to anything in the way of monopoly or secrecy or hindrance of research which might be entailed by patenting. Insulin had been patented, but the patent was handed over to the medical research council in this country and had been worked under it with great success. Mr. H. S. Souttar, surgeon to the London Hospital, criticized the idea that mon-

opoly involved secrecy or hindered research. Dr. Graham Little, M.P. (dermatologist), moved that the recommendation be referred back for further consideration. He denied that patenting involved secrecy. The one thing that the new patent laws required was the divulging of the patent. The amendment was carried.

UNQUALIFIED PRACTICE CANNOT BE SUPPRESSED IN ENGLAND

The medical secretary of the association, Dr. Alfred Cox, at the recent annual conference of the Association professionelle international des médecins expressed skepticism of the value of laws directed to the entire suppression of unqualified practice. A motion of regret that he did not give that full measure of support to the recommendations of the conference to which they were entitled was now brought forward. Dr. Brackenbury, chairman of the council, said that Dr. Cox's skepticism was representative of the general profession of this country. As a profession they had never made a demand for the prohibition of unqualified practice. They had held that it was consistent with the general English character that, if an adult Englishman chose to make a fool of himself in this direction, he might do so. All that they were concerned with was that he should have some means of distinguishing those who had passed through a certain training, and had obtained certain qualifications, from those who had not. Dr. Cox said that there was scarcely a representative of any one of the countries at the conference who did not explain that they had fairly stringent laws to put down unqualified practice and confessed that none of these had been of any use. Their chief use seemed to be to divert the charlatan into rather more subtle ways. He did not believe that it was possible to suppress the human desire for quackery. Dr. Graham Little, M.P., showed the impossibility in this country of passing legislation suppressing unqualified practice from his experience of bringing forward a motion in the house of commons with the object of an inquiry into the whole question. The small body of medical members had to talk the motion out, for it was obvious that if it went to a division it would have been badly beaten. It came out that a committee of the house 200 strong was actually in existence for promoting the registration of osteopaths, and practically all the speakers who were not physicians spoke against any measure for the suppression of unqualified practice. The amendment was lost.

PARIS

(From Our Regular Correspondent)

July 16, 1930.

Mentally Ill Foreigners in France

In his annual report on the functioning of the asylums of the Seine, Dr. Auguste Marie, chief physician of the Asile clinique Sainte-Anne, mentions the large number of foreigners admitted to the special hospital services. The large percentage of mentally ill foreigners (10 per cent)—chiefly Belgians, Italians and Poles but also Russians, Swiss and orientals, is becoming a serious problem, especially as most of the cases are of an incurable nature. Dr. Marie has prepared statistics showing the number of mentally ill foreigners admitted to the psychopathic services since 1924. In two years and a half, 2,500 mentally ill foreigners belonging to thirty-six different nationalities from all parts of the world have been interned in Paris. The major portion of these were chronic cases. Many of them were evidently mentally ill when they left a foreign country for France, where they immediately become a burden on the country, for the most part, during the remaining years of their existence. At 30 francs a day, the usual charge in Asile Sainte-Anne, the total daily expenditure would be 60,000 francs, which must be borne by the taxpayers of Paris and France. As their average age is 27 and their life expectancy is thirty years, the total cost will be 100,000,000 francs, or $4,000,000, though removals to institutions in the provinces may reduce that amount. These and other facts led Professor Achard and Mr. Léon Bernard to induce the Academy of Medicine to adopt a resolution demanding the organization of better sanitary control of immigration; for the reciprocity treaties covering the matter of mutual aid did not suffice to ward off the danger or to relieve the burden to any great extent. In 1926, Mr. Justin Godart proposed the creation of a tax on foreigners to provide in part for this form of aid. To weed out undesirables from the large group of foreigners who come to France, Prof. A. Marie concludes, would not be in contravention of our traditions of hospitality. The purpose is to prevent France from being exploited, thus incurring the risk of having its civilization undermined by indirect attacks on the domain of its intelligence and the realm of its physical forces.

Hydrocyanic Acid in the Viscera at Delayed Necropsies

Dr. Kohn-Abrest, head of the laboratory of the prefecture of police, has discovered an unexpected cause for the presence of hydrocyanic acid in the viscera of subjects on whom necropsies are performed after long intervals. He recently presented a communication on the matter to the Academy of Sciences. Normally, one should not find hydrocyanic acid unless that substance has been introduced by accident or through criminal intent. Nevertheless, infinitesimal traces of the acid may be discovered if the subject has ingested mustard or made use of mustard plasters over a long period of time. Kohn-Abrest found considerable quantities of hydrocyanic acid in the putrefied viscera of subjects who had absorbed barbital and other barbituric compounds, which are today widely used and sometimes to excess, although they may not be employed in recognized toxic doses. He has shown experimentally that hydrocyanic acid develops from barbituric compounds during the phenomena of putrefaction. In a guinea-pig that has ingested 0.2 Gm. of barbital, no traces of hydrocyanic acid may be found on analysis of the viscera immediately after death; but if the carcass is allowed to putrefy for twenty days, it will be found to contain 4 mg. of hydrocyanic acid. This fact may give rise to a grave cause of error in necropsies and medicolegal analyses when performed at a late stage, if the subject ingested barbituric compounds during the last days of his life without the examiner having been informed.

Methods of Destroying Mosquito Larvae

Addressing the Société de pathologie exotique, Mr. E. de Buen gave the results of his studies on the destruction of larvae of anopheles in the Spanish province of Caceres, between the Tagus River and its branch, the Tietar. The only species of anopheles found there is *Anopheles maculipennis*. To be effective, larvicidal substances must meet certain conditions: 1. They must have a rapid action on the aquatic forms in the development of anopheles; petroleum and liquid petrolatum are such substances. 2. They must not change the nature of the water; liquid petrolatum leaves a disagreeable coating on the water that kills other air-breathing insects; some antilarval agents, because of their odor, drive away the animals that drink the water and destroy the microbes of the aquatic flora. 3. They must be inexpensive. The author studied the action of *Gambusia* against mosquito larvae. This genus of small fish has become well acclimated in Spain and, if proper precautions are observed, gives excellent results in the antilarval crusade.

The Centenary of Marey

The Academy of Medicine devoted a complete session to the celebration of the centenary of Marey, which was attended by a group of American and Canadian physicians who were in Paris on a tour of France. Professor Richet, although 82 years of age, delivered a eulogy on the great physiologist, who was his teacher. In an imaginative style, he portrayed eloquently, the man who was the inventor of methods of graphic regis-

tration in physiology. By utilizing chronophotography, he made possible the study of the mechanism of movements and thus prepared the way for the discovery of cinematography, of which he proclaimed the principle. Professor Richet presented before his audience the first films of Marey, on the walk of the chicken, the trotting of a horse, the somersaults of the athlete, the flight of birds, and the like, which were produced between 1888 and 1894. Mr. Grimoni-Sanson, president of the Comité Marey, explained the rôle of Marey as the precursor of aviation. He threw on the screen recent films produced at the Institut Marey, some of which were on the basis of a thousand pictures a second, which permits a slow cadence, so as to bring out the smallest details of a movement. The day following the ceremonies, Professor Turpin, of the Faculté de Poitiers, sent a letter to the daily press to correct a statement of Professor Richet; namely, that Muybridge, a photographer of San Francisco, has the honor of making the first chronophotographic slides and that Marey himself always admitted the fact.

Deaths from Automobile Accidents

The question of fatalities due to automobile accidents is a matter of increasing importance. The total number of deaths caused by traffic accidents every year is but little less than the mortality caused by the more grave diseases and is beginning to exert a marked influence on the general vital statistics. What makes the matter worse is that usually the persons killed are those who are well and strong, with the prospect of many years of life before them. The statistics of traffic accidents occurring in the department of the Seine in 1929, recently published by the prefecture of police, reveal that, of 639 persons killed, 67 per cent were pedestrians, 15 per cent were cyclists, and 18 per cent were drivers or passengers. The judicial inquiries have shown that two thirds of the pedestrians killed were victims of their imprudence. Of the total, 48 per cent of the accidents were due to faults of the drivers, and 46 per cent to the faults of the victims. Approximately the same proportions are found in other parts of France.

ITALY

(From Our Regular Correspondent)

June 15, 1930.

Pneumothorax and Spleen Extract in Tuberculosis

The Palermo branch of the Società per gli studi scientifici sulla tuberculosi met recently under the chairmanship of Prof. Luigi Manfredi. Prof. Vincenzo Fici presented a communication on spontaneous pneumothorax resulting as the outcome of primary interventions for the institution of therapeutic pneumothorax. The speaker brought out, after an examination of the existing literature on the subject, that the influence of operative technic in the institution of therapeutic pneumothorax has heretofore been but slightly considered. He has a list of 12 personal cases derived from 300 cases of pneumothorax that he instituted. With relation to the symptomatology, the cases may be divided into two groups—those of slight and those of moderate severity. As for the pathogenesis, Professor Fici is inclined to suspect a slight trauma produced by the needle on a part of the lung in a state of emphysematous rigidity, or lacerations of pleural adhesions due to the insult, together with other factors affecting the respiratory mechanism. The speaker discussed the treatment of the accident and the technic for carrying out pneumothorax treatment when the accident has been overcome.

Professor Cirimimma spoke of certain difficulties arising as a result of retarded inflation in pneumothorax treatment. The communication was combined with the presentation of clinical cases. In certain cases the retarded inflation (occurring about two months from the beginning of the collapsotherapy) caused an uneven reexpansion of the various lobes of the lung, together with a flare-up of the morbid process. In other cases, there was a displacement of the mediastinum, together with circulatory disturbances, but without exacerbation of the tuberculous process. In general, the changes vary depending on whether the retardation occurs in the first part of the treatment or in a period more advanced. Under these conditions there is frequently displacement of the heart, together with circulatory disturbances, and retraction of the thoracic wall on the affected side.

Professor Piazza presented a communication on the results and on the significance of splenotherapy in pulmonary tuberculosis. By means of suitable technic, Professor Piazza succeeded in obtaining from the splenic mass a fragment perfectly identifiable by its physicochemical characters, which was equal to about 3 per cent of the spleen operated on. This fragment of spleen was used experimentally in persons affected with diffuse pulmonary tuberculosis, with grave toxemia. It was administered in the form of dry powder, by the oral route, in doses of from 0.5 to 3 Gm. a day. It was always well tolerated, no signs of intolerance having ever been noted. The effects were slow in appearing (after many days) and were manifested by fever, local factors and changes in the general conditions. The effects were proportional to the doses employed, and coincided, in a general way, with the results obtained by other authors who used whole spleen extracts. There was lacking, however, the direct action on the blood crasis that occurs with the whole spleen extracts, which is to be attributed to the hemoglobin and iron contained in the spleen. This difference brings out the fact that the beneficial action of the spleen extracts on the course of the pulmonary tuberculous process is independent of that directed toward the total blood mass. It is not certain at present whether the regulation of the processes of recovery in the tuberculous lung, which is observed under the action of the fragment of spleen, is to be ascribed to the functions of the spleen in relation to nutrition in general, or whether it is connected with the total and partial metabolism; in other words, whether a hormonoid or a homostimulative action is involved.

Laws Pertaining to Occupational Accidents

Prof. Baldo Rossi, senator, clinical surgeon and rector of the University of Milan, recently suggested the modification of the legal provisions at present in force in favor of persons who suffer injuries in occupational accidents. The present law was enacted years ago, more as a result of political pressure than in accordance with sound medicolegal views, and has numerous defects. The result of the operation of the law is that those who have suffered a genuine reduction of their working capacity are neglected, whereas the modern idea is to extend the benefits of insurance to the large group of sufferers from accidents, even though they have suffered only a slight reduction in their earning capacity. For example, a person who has lost a single finger receives one twentieth of the amount allowed the person who has lost completely his eyesight or the use of all his limbs.

Reforms are needed also, Prof. Baldo Rossi contended, in the matter of compensation for fatal accidents. At present, a widow receives the same indemnity whether she has children or has none. The application of the law gives rise also to abuses, and in some localities special organizations have been created for the exploitation of sufferers from accidents who come into possession of compensation monies.

Anemic Type of Cancer of Stomach

At a recent session of the Turin research center for the diagnosis and treatment of tumors, Prof. Paolo Pietra referred to a large number of personal cases of gastric cancers in which the clinical picture was dominated essentially by a grave anemia. The anemia was sometimes of the pernicious type but most often of the chlorotic type and was associated with a characteristic symptomatology, whereas there were few, if any, symptoms, subjective or objective, chargeable to the stomach. Often there was neither pain nor vomiting, while the gastric chemism did not appear profoundly changed; there was absence of blood in

the gastric juice and in the feces; sometimes also the radiologic observations were negative. Professor Pietra discussed the pathogenesis of the anemia of cancerous persons, pointing out that sometimes the anemia is not to be attributed to heavy losses of blood, but it seems more likely that it is in relation to disturbances of hematopoiesis, due to the presence of the cancer.

In the discussion that followed the communication of Professor Pietra, Professor Micheli, medical clinician of Turin, remarked that the differential diagnosis between pernicious anemia and cancer of the stomach is sometimes quite difficult. He holds that the hunterian tongue is a valuable clinical symptom with differential significance. As for the pathogenesis of anemia of the pernicious type in cancer of the stomach, Professor Micheli thinks that one will find either that cancer developed in an anemic person or that cancer of the stomach is truly one of the causes of the anemia. Sometimes pernicious anemia is cured by the administration of extracts of gastric mucosa in place of liver.

The Prematrimonial Certificate

Professor Pestalozza, senator and obstetric clinician of the University of Rome, recently delivered a lecture before the Società di ginecologia on the compulsory prematrimonial certificate, which is a subject still much discussed. The objectives in view in making the certificate compulsory, said Professor Pestalozza, are chiefly of a eugenic character and contemplate an improvement in the quality rather than in the quantity of offspring. Many think that if such a certificate was made compulsory it would aid in the social crusade against tuberculosis and diseases of sexual origin. But, in actual practice, it is difficult for a physician to guarantee, by the issuance of a public document, that a juvenile who has had either gonorrhea or syphilis is absolutely incapable of infecting the offspring or the spouse. As for the need of an attest of immunity to tuberculosis, the present knowledge of tuberculosis in pregnancy shows that the prognosis as to the destiny of children born of tuberculous parents is not so definite and certain as was formerly supposed. Therefore, Professor Pestalozza regards as premature and useless the plan of making the contraction of marriage dependent on the presentation of a medical certificate.

Congress of Anatomy

The Società italiana di anatomia will hold its second congress in Florence, in October, 1930, under the chairmanship of Prof. Giulio Chiarugi, of the department of anatomy at the University of Florence. Two main topics have been selected for discussion: (1) the modern morphology of the autonomic nervous system, to be presented by Professor Terni, and (2) morphologic data as a guide in physiologic researches on the cerebellum, with a paper by Professor Sinconelli.

The Colonial Health Service

Prof. Umberto Gabbì, director of the Clinica medica di Parma, spoke before the senate recently on the sanitary problems of the Italian colonies in Africa, pointing out that they should receive more attention than they have in the past. A mission of physicians and chemists, under his leadership, went recently to Eritrea, on the Red Sea, to study tropical diseases and visited several thousand patients. On the basis of this investigation, Professor Gabbì made proposals pertaining to hygienic prophylactic measures that should be adopted, particularly with regard to native children, for their protection against malaria, tuberculosis and trachoma. He called attention to the grave problem of half-breeds, in whose behalf he invoked the assistance of the Opera nazionale per la protezione della maternità e infanzia. He spoke also of the medicinal plants of the colonies, the growing of which might be made a profitable industry.

Meeting of the Antituberculosis Society

Under the auspices of the Consorzio antitubercolare della provincia di Roma, the health officers of Latium, together with colleagues from all parts of Italy, have assembled in Rome to pursue an intensive short course in the clinical aspects of tuberculosis, at the Mussolini Institute. The purpose of the meeting is to establish in a practical manner cooperative relationships between the health officers and the antituberculosis societies, in accordance with the provisions recently set forth by the ministry of the interior.

Dr. Lusignoli, national director of the health officers, explained the duties of the health officers in the crusade against tuberculosis, and expressed the assurance that the officers are ready to cooperate with the provincial societies.

Ricci, commissioner for the province of Rome, gave an account of the work accomplished to date by the society of Rome and the program of work for the future.

Professor Benedetti, sanitary inspector, outlined the technical work that the society will ask the health officers to do, which will consist essentially in ferreting out tuberculous persons and in carrying out publicity in the environs of the cities and in the more remote rural districts where, often, only the health officer has an opportunity to go. The health officers should also keep in close touch with the school teachers, in order that antituberculosis preventive measures may be applied, especially among the children.

The Superior Council of Health

The new superior council of health, which will serve for the three-year period 1930-1932, has been appointed. For the regular session of the current year, Prof. Ettore Marchiafava, senator, was chosen president, and Prof. Alfonso di Vestea, hygienist of the University of Pisa, vice president.

BUENOS AIRES

(From Our Regular Correspondent)

July 1, 1930.

Experiments on the Onset of Labor

Dr. Perez presented a communication before the Sociedad de Pediatría of Buenos Aires, May 8, in which he reported the results of experiments on the humoral factor in the onset of labor. He made transfusions of from 50 to 300 cc. of citrated blood which had been withdrawn from parturients into thirty pregnant women at full term in whom labor had not yet started. In nearly all the thirty cases, immediately after the transfusion, either the premonitory symptoms of labor or its actual onset occurred. In 60 per cent of these cases, complete delivery followed; that is, labor continued till the expulsion of the fetus and the placenta. Transfusion was also made with blood which had been withdrawn from pregnant women at full term, but who were not as yet in labor, into twenty-five women at full term. In none of the last mentioned pregnant women who received the transfusion did labor begin.

National Institution to Solve Problems of Nutrition

A bill has been passed creating a national institution to solve the problems of nutrition in Argentina. The institution, which will be under the office of the minister of foreign affairs and under the immediate direction of Dr. Pedro Escudero, will have the following functions: 1. To advise the national government, the municipal authorities and the local government of the provinces on all problems related to the dietary of the population and the prophylaxis and treatment of diseases of nutrition. 2. The creation of a dining room for the assistance of patients with diseases of nutrition, in which the alimentation of patients will be supervised. 3. The creation of a center for the reeducation of patients or of slightly injured persons and for training them in such work as their physical condition permits them to do. Factories and offices of the government will

cooperate when necessary. The director of the institution shall present to the government plans for the establishment of the headquarters and the regulations of the institution. The government has provided 100,000 pesos ($50,000). The influence of improper or deficient diets in several regions of Argentina is shown in the unsatisfactory statistics of some provinces, and in the high infant mortality rate.

Asuero Arrested in Argentina

The Spanish physician Fernando Asuero made a visit to Argentina last May. Asuero announces that with his method of nasal reflexes he is able to cure instantly paralysis, rheumatism, pyorrhea, hemorrhoids and diabetes. He confesses, however, that his method fails in case of cancer. Asuero's method consists in giving one or more strokes on the deep portions of the nasal fossae by means of a blunt bistoury till tears appear and pupillary dilatation is provoked. From that moment the patient is cured. Local papers have intensely praised Asuero, who stated that he had not come with the aim of treating patients or to make money. Nevertheless, after a few weeks of his stay here he practiced among rich people, accepting high fees. He refused to demonstrate his method on several patients who had been well observed, and also refused to give lectures on his method. Some physicians, many of whom have not been very ethical, have now opened clinics in which they claim they practice Asuero's method. The National Department of Hygiene of Buenos Aires denounced Asuero on the basis that he was practicing illegally in Argentina without having been licensed in Argentina, and he was arrested and freed under bond. He was not to leave the city without notifying the authorities. Nevertheless, he left without notifying them.

Medical Congresses

The Fourth National Congress of Medicine, which was to be held this year in Buenos Aires, has been postponed till next year. The official topic is leprosy. The president of the National Congress of Medicine is Prof. José Arce. He obtained an appropriation of 100,000 pesos ($50,000) for the expenses of the congress.

The Second Argentine Congress of Surgery was held at the School of Medicine of Buenos Aires, July 13 to 20. Several surgeons of Chile, Uruguay, Brazil, Bolivia, Peru and Paraguay either presented papers or sent them to be read. The committee on organization consisted of Drs. E. Belaustegui, president, and A. Bengolea, A. Buzzi, P. Jauregui and R. Rodríguez Villegas, secretaries. The first official topic dealt with the sequels and complications of chronic appendicitis.

During the celebration of the centenary of the independence of Uruguay, several medical congresses will be held at Montevideo, among which will be the National Congress of Medicine, the International Congress of Biology, the Conference on Cancer, and the International Conference on the Serology of Syphilis.

In the near future the Congreso Panamericano del Niño will be held at Lima, Peru. A delegation of Argentine pediatricians formed by Drs. J. C. Navarro, F. Bazán, G. Aráoz Alfaro, E. Olivieri, R. Cibils Aguirre, M. J. Del Carril, C. de Arenaza, J. M. Macera, E. Pueyrredón, C. Cometto, F. de Elizalde, M. Bortagaray, E. González Guerrero and R. C. Guardo, left Argentina to attend the congress.

Personals

The Asociación Médica Argentina invited Professors Leschke of Berlin and Debré of Paris to attend its meetings this year. An invitation was sent to Professor Nobécourt of Paris for the coming year. The invitations were accepted.

Prof. G. Marinescu of Bucharest will lecture at Buenos Aires, Rosario and Córdoba, Argentina, at the request of the Argentine profession. His topics will be: the constitution of brain, nervous functions of the brain, and filtrable viruses.

TURKEY

(From Our Regular Correspondent)

Ankara, July 14, 1930.

Maritime Quarantine Regulations

The second chapter of the new public health law pertains to the combat of infectious diseases and epidemics. One of the seven subdivisions concerns the department of maritime quarantine, whose duty it will be to defend the national boundaries and ports against diseases and epidemics arising through international communication, transportation and commerce. Every vessel starting from a Turkish port is to be in possession of a bill of health. The bills of health of vessels coming from foreign ports are subject to investigation by a Turkish consul; after satisfactory evidence has been produced that the document is of undisputed origin, it is viséed. When an epidemic threatens the country, the ministry of health and social assistance will send a special official to the consulate of the port of outbreak. When there is no consulate at the port, he will send an independently working official there who will indorse the bills of health and get information on the health condition of the community in question. For the viséeing of bills of health, a tax fixed in conformity with a special law is to be paid to the consulate. Bills of health issued forty-eight hours before a vessel has left the port are valid, making null and void one issued before that time.

Bills of health issued at a port of embarkation where there were no cases of cholera, plague, yellow fever, typhus fever, smallpox or other dangerous diseases announced by the ministry of health and social assistance are declared clean. Though the occurrence of ascertained sporadic cases does not make a bill of health unclean, the bill is to mention the occurrence of such cases.

Vessels arriving at a Turkish port without a bill of health are to undergo the same formalities as vessels arriving with an unclean bill of health. Vessels having proceeded from a Turkish or foreign port stopping at a Turkish port and not submitting to health inspection are not permitted to let passengers go ashore or unload baggage. All vessels arriving at a Turkish port are visited by an official of the direction general of the department of maritime quarantine, who is to investigate into the health conditions of the vessels and examine the bills of health. Vessels being obliged to touch a port on account of accidents, storm or other special circumstances are obliged to present their bill of health and while in port remain under the supervision of the officials of the department of maritime quarantine. Foreign men-of-war are under no obligation to present their bill of health except in case any one desires to go ashore or if they wish to hold communication with the shore they are without exception subject to the decisions in regard to merchant fleets. Vessels communicating between the Dardanelles, the Bosporus and the sea of Marmora are allowed to let their passengers go ashore at the arrival at a port without health inspection, but the vessel will comply with the usual health formalities. With the exception of such vessels and vessels used for fishing purposes which go a small distance and return without having touched a port, all Turkish and foreign vessels are to be in possession of a health bill.

The Turkish consulates are regularly to inform the ministry of health and social assistance of the occurrence within their territory of any of the diseases mentioned and of measures conditioned on them.

The ministry of health and social assistance is authorized to prohibit the disembarkation or further transportation either by land or by water of all kinds of goods being capable of spreading infectious and epidemic diseases and which it is impossible or impractible to cleanse scientifically or on which it is not effective. In regard to this and after circulars have been sent to the customs and postoffice and because of the urgency of the decisions, the ministry is to get the approval of an executive

council of ministers. The carrying out of health formalities in all Turkish ports appertain to officials of the department of maritime quarantine. Expenses for cleaning, disinfection and administration of quarantine stations of the department of maritime quarantine and penalties for captains unlawfully leaving port are fixed by law.

The ministry will take the following measures in regard to commercial goods, personal baggage and persons crossing the border, if in one of the neighboring countries the diseases have occurred: (1) medical examination at a place within the boundaries of the disease-stricken country or a convenient place in the environment of the boundary, of persons arriving by train, carriage or any other means of communication by land or river; (2) the application of serums and vaccines; (3) the cleansing and disinfection of personal belongings of travelers and of commercial goods; (4) medical supervision of travelers or the isolation of suspicious persons; (5) the treatment and isolation of sick persons.

In regard to persons and baggage arriving by airway from a country stricken with one of the diseases mentioned, these measures are applied at a place along the border or at an airplane landing station (THE JOURNAL, Aug. 9, 1930).

BERLIN

(From Our Regular Correspondent)

July 21, 1930.

The Regulation of Proprietary Medicines

A session of the Prussian Landesgesundheitsrat on proprietary medicines was held, July 8, at the ministry of public welfare. As proprietaries, or medical specialties, are designated those medicines which, being used in large quantities, are produced on a factory basis and are put on the market in a form ready for dispensing and under the protection of a patent or a trade mark. The deliberation was attended by eminent medical and pharmaceutic university teachers; well known experts and representatives of the professional federations particularly concerned. On the basis of the papers that were presented by Geheimrat Thoms, Prof. P. Trendelenburg and others, the provincial health council regards an early legal regulation of the sale of proprietaries as indispensable. For the production of proprietaries a special concession and evidence of professional supervision of the manufacture should be required. An official list of proprietaries should be published. The authorities having jurisdiction must supervise the manufacture. Official laboratories for the testing of proprietaries, together with the use of existing institutes, should be established. If, on examination, it appears that the statements made, at the time an article is proposed, in regard to the composition thereof, do not agree with the facts, the article should be stricken from the official list and its sale prohibited. It is to be hoped that the legislators will soon take account of the recommendations of the provinical health council, in order that certain harmful products on the market may be eliminated. This matter was discussed in THE JOURNAL, May 31, p. 1778.

Number of Quacks in Germany

Under the protection of freedom of treatment, established by parliament in 1869 in opposition to the government, quackery in Germany has made great progress. Quackery is profitable and entails no particular risk for the one who practices it. In 1879 there were in Berlin 28 quacks; in 1907 the number had increased to 1,349. In Prussia the quacks increased from 5,063 in 1923 to 5,648 in 1924, an increase of nearly 600 in one year. In 1907 the number of quacks in Germany was placed at 12,000. Quacks are recruited from all sorts of trades, professions and occupations. According to statistics issued in 1898, 20 per cent of the quacks in Prussia belonged to the laboring class, 40 per cent were artisans, 16 per cent were tradesmen, and 24 per cent had followed occupations requiring considerable schooling. Of the female quacks in Berlin, 58 per cent had been maids, 24 per cent garment workers, and 10 per cent charwomen, or day workers. In 1910, of 1,735 quacks in Prussia 258 were small farmers and tradesmen, 587 were artisans, 300 were merchants and industrialists, 76 were laborers, 218 were civil servants (among these, 35 pastors and 99 teachers); of 669 women quacks 49 were midwives, 14 masseuses, 15 nurses, 230 with no special occupation, and the remainder were wives of laborers and artisans. The law for the combating of venereal diseases, which went into effect, Oct. 1, 1927, has proved sufficient in the field of venereal diseases to check the practice of the quacks. According to the suggestions of Prof. Dr. Ebermayer, German jurist and former attorney general, a law to prevent quackery might take the following form:

> Any person who, without having been licensed according to law or by exceeding the limits of the authority delegated to him by his license, except in an emergency, shall give another person medical treatment as a commercial transaction, shall be subject to imprisonment up to one year and to a fine up to 10,000 marks, or to only one of these penalties.

Some such restrictive legislative action appears to be an imperative necessity, to prevent the damage that results from the increasing vogue of quackery.

Statistics recently published by the federal bureau of health show that on Dec. 31, 1928, Germany had a total of 12,098 quacks or, as they are euphoniously styled, *laienbehandler*, or lay practitioners. Of that number, 2,803 were women. The term *laienbehandler* is applied by the federal bureau of health to persons who, though holding no medical license, attend or treat the sick as a commercial transaction. Of these 12,000 *laienbehandler*, or lay practitioners, 62 per cent were in urban and 38 per cent were in rural districts. As compared with 1927, the number of quacks had increased in 1928 by 337. From their varying numbers in different regions, it is evident that quackery finds its most fruitful soil in urban and industrial sections, whereas in rural districts, in spite of the fact that there are few physicians, it is much less in vogue. Quackery, it will be seen, does not prosper merely in regions in which there is a dearth of physicians but also in sections in which the supply of good physicians is ample. The development of quackery is evidence of the mental distress of our times.

Hamburg has the highest percentage of quacks, 9.48 per 10,000 inhabitants. Saxony follows with 3.33 per 10,000; Berlin with 3.01; Bremen, 2.81; Schleswig-Holstein, 1.98; Hessen-Nassau, 1.97; Rhine Province, 1.91; Lower Silesia, 1.90; Westphalia, 1.87. The smallest percentage of quacks is found in Waldeck (0.35) and in Mecklenburg-Schwerin (0.41 per 10,000 inhabitants).

Marriages

MARY RUTH MCGUIRE, Chicago, to Mr. William J. Mattimore of Detroit, in Dubuque, Iowa, July 23.

GROVER C. GOODWIN, Rankin, Ill., to Miss Mildred Bjurustrom of Gays, in Pittsfield, June 28.

SPENCER A. FOLSOM, Orlando, Fla., to Miss Mary Margaret Taylor of Beaver, Pa., June 14.

SHALER ARNOLD RICHARDSON to Miss Helen Hare, both of Jacksonville, Fla., June 20.

FRANK S. TUTHILL to Miss Viola Keeler, both of Concord, Mich., in Lansing, June 8.

JOSEPH C. INMAN, JR., Chattahooche, Fla., to Miss Dorothy Driver of Tampa, July 2.

ERNEST W. FRANKLIN, JR., Raleigh, N. C., to Miss Tempe Gee Williams, June 23.

JAMES W. O'DELL to Miss Mary Louise Stubbs, both of Dunn, N. C., June 21.

EDWARD M. HARRINGTON to Miss Edith Edwards, both of Chicago, July 17.

HOWARD C. KNAPP, Baltimore, to Miss Anne Marie Buschman, August 9.

JOSEPH HAJEK to Miss Olga Weber, both of New York, August 4.

Deaths

Christian B. Longenecker ⊕ Philadelphia; Bellevue Hospital Medical College, New York, 1892; past president of the Philadelphia County Medical Society; on the staff of the Oncologic Hospital; formerly on the staff of the Presbyterian Hospital; for many years editor of the *Weekly Roster and Medical Digest;* aged 73; died, July 22, in Bedford Springs, Pa.

James Wallace Douglass, Boonville, N. Y.; Long Island College Hospital, Brooklyn, 1877; member of the Medical Society of the State of New York; health officer of Ava and Boonville; formerly mayor, coroner and member of the board of education; aged 85; died, May 31, of heart disease.

Fowler Alfred Watters, Lockport, N. Y.; Hahnemann Medical College and Hospital of Philadelphia, 1892; medical inspector in the public schools; formerly health officer of Lockport; aged 60; died, June 24, of cerebral hemorrhage.

Theodore Brevard Hayne, Lagos, Nigeria, Africa; Medical College of the State of South Carolina, Charleston, 1927; member of the International Health Board of the Rockefeller Foundation; aged 31; died, July 11, of yellow fever.

James Augustine Cullen, Valley Falls, R. I.; Dartmouth Medical School, Hanover, N. H., 1902; formerly member of the state legislature; aged 53; died, June 19, in the Rhode Island Hospital, Providence, of chronic myocarditis.

Edmund A. Munoz, Boise, Idaho; College of Physicians and Surgeons, Baltimore, 1892; aged 67; on the staff of the U. S. Veterans' Hospital, number 52, where he died, July 25, of chronic pulmonary tuberculosis.

Schuyler Barclay Moon ⊕ Richmond, Va.; University College of Medicine, Richmond, 1905; formerly lecturer on embryology at his alma mater; aged 63; was found dead, July 12, of illuminating gas poisoning.

Henry Rufus Lankford Worrall, Greenville, Pa.; Dartmouth Medical School, Hanover, N. H., 1893; formerly a medical missionary; aged 68; died, June 8, at a hospital in Philadelphia, of heart disease.

William Harrison Linke, Milwaukee; Wisconsin College of Physicians and Surgeons, Milwaukee, 1897; formerly demonstrator of anatomy at his alma mater; aged 74; died, June 20, of cerebral hemorrhage.

Edward Kingsland Johnson, Fishkill, N. Y.; New York Homeopathic Medical College and Hospital, New York, 1901; county coroner; aged 59; died, in July, from the effects of a nitric acid burn.

Theodore F. Frazer, Commerce, Mo.; Vanderbilt University School of Medicine, Nashville, Tenn., 1882; formerly member of the state legislature and county judge; aged 84; died, July 5.

Stephen A. Ingham, Little Falls, N. Y.; Albany (N. Y.) Medical College, 1871; member of the Medical Society of the State of New York; aged 80; died, June 13, of carcinoma of the prostate.

William E. Mowery, Scott City, Kan.; Eclectic Medical Institute, Cincinnati, 1887; aged 73; died, June 24, in the Asbury Hospital, Salina, of injuries received in an automobile accident.

Warren Wesley Welch, Hall Summit, La.; College of Physicians and Surgeons, Little Rock, 1911; aged 55; was found dead, July 7, with his throat cut, presumably self-inflicted.

John Carroll McManama, Waltham, Mass.; College of Physicians and Surgeons, Boston, 1913; for many years on the staff of St. Elizabeth's Hospital, where he died, July 18, aged 42.

Ernest Owen Weber ⊕ Wahoo, Neb.; Rush Medical College, Chicago, 1902; past president of the Saunders County Medical Society; aged 54; died, July 10, of cerebral hemorrhage.

Francis M. Cooper, Washougal, Wash.; American Medical College, St. Louis, 1877; College of Physicians and Surgeons, Keokuk, Iowa, 1880; aged 76; died, April 1.

Joseph Benjamin Finucane, Denver; University of Buffalo School of Medicine, 1888; aged 67; died, June 19, of cerebral hemorrhage and Parkinson's disease.

William Henry Charlesworth, Nashville, Tenn.; Trinity Medical College, Toronto, Ont., Canada, 1886; aged 65; died, July 14, of chronic nephritis and myocarditis.

Richard Spencer Nolen, Bessemer, Ala.; Kentucky School of Medicine, Louisville, 1889; aged 63; died, July 13, of prostatitis following obstruction and uremia.

Edward Augustine Dooley, Jr., Yonkers, N. Y.; University and Bellevue Hospital Medical College, New York, 1899; aged 61; died, July 15, of heart disease.

Allen Gifford Peckham, Waterford, N. Y.; Hahnemann Medical College of Philadelphia, 1871; formerly health officer of Waterford; aged 81; died, June 10.

James Addison Meriwether, Jr., Philadelphia; Medico-Chirurgical College of Philadelphia, 1916; served during the World War; aged 39; died, June 2.

Aaron Miller Dodds, Jackson, Miss.; Medical Department of the University of Louisiana, New Orleans, 1873; aged 82; died, July 7, of chronic cholecystitis.

Lawrence P. Mayer, Hudson, Wis.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1900; aged 55; died, June 5, of heart disease.

Thomas C. Buskirk, Mason, Mich.; Chicago Homeopathic Medical College, 1888; aged 77; died, July 20, of nephritis and hypertrophy of the prostate.

Justo Pabella y Rafa, Lucena, Tayabas, P. I.; University of St. Thomas College of Medicine and Surgery, Manila, 1921; aged 37; died, March 23.

James Thomas Thompson, Lewes, Del.; University of Pennsylvania School of Medicine, Philadelphia, 1867; formerly mayor; aged 86; died, in May.

George Philip Neal, Fort Madison, Iowa; State University of Iowa College of Medicine, Iowa City, 1874; aged 77; died, July 12, of heart disease.

Forest P. Hudson, Tucker, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1909; aged 68; died, June 6, of a self-inflicted bullet wound.

James Henry Stone, Washington, D. C.; Medical Department of Columbian University, Washington, 1889; aged 64; died, July 6, of heart disease.

Bennett W. Howard, Midland, Ark.; College of Physicians and Surgeons, Little Rock, 1911; aged 63; died, July 15, in a hospital at Fort Smith.

Robert S. Miller, Hartshorne, Okla.; University of Louisville (Ky.) School of Medicine, 1875; aged 79; died, in February, of bronchopneumonia.

Franklin John Thompson, Winnipeg, Man., Canada; University of Toronto Faculty of Medicine, 1910; aged 44; died, July 14, of heart disease.

Walter Rodman Lincoln, Cocoa, Fla.; University of Pennsylvania School of Medicine, Philadelphia, 1890; aged 63; died, in July, of heart disease.

John J. Fisher, Rossville, Ind.; Bellevue Hospital Medical College, New York, 1880; aged 77; died, July 22, of chronic myocarditis and uremia.

George F. Newhall, Los Angeles; Medical Department of the University of Illinois, Chicago, 1898; aged 70; died, June 2, of chronic myocarditis.

Percy Marmaduke Kimbrough, Morgan City, Miss.; Vanderbilt University School of Medicine, Nashville, Tenn., 1898; aged 59; died, July 15.

Robert Shields Donehoo, Dormont, Pa.; Jefferson Medical College of Philadelphia, 1874; aged 81; died, June 20, of cerebral hemorrhage.

George Luther Smith, Shenandoah, Iowa; College of Physicians and Surgeons, Keokuk, 1882; aged 77; died, March 19, of arteriosclerosis.

Rawlings Clarence Fear ⊕ Gardner, Kan.; Marion-Sims College of Medicine, St. Louis, 1897; aged 63; died, June 9, of heart disease.

Norval Letcher Coiner, Durham, N. C.; University of Maryland School of Medicine, Baltimore, 1884; aged 70; died, March 24.

Charles W. Ekermeyer, Montgomery, Ohio; Eclectic Medical Institute, Cincinnati, 1878; aged 73; died, July 11, of heart disease.

Oscar J. Mayer, Redwood City, Calif.; University of California Medical School, San Francisco, 1885; aged 65; died, June 1.

Silas Wilson Hopkins, Lodi, Calif.; Louisville (Ky.) Medical College, 1879; aged 85; died, June 19, of arteriosclerosis.

David Davis, Venedocia, Ohio; Eclectic Medical Institute, Cincinnati, 1885; aged 72; died, July 18, of cerebral embolism.

J. W. Kelly, Bellville, Ohio; Homeopathic Hospital College, Cleveland, 1882; aged 74; died, July 15, of heart disease.

Correspondence

"TESTICULAR TRANSPLANTATION"

To the Editor:—An editorial in THE JOURNAL, July 19, may cause a misconception of some aspects of the subject of testicular transplantation.

Every physician will agree with your views regarding the falsity of "rejuvenation" as related to testicular transplantation. I have vigorously protested against the use of this unfortunate and misleading term. Furthermore, it also stands proved and demonstrated that no therapeutic results can be obtained from heterogenous transplantations from the lower mammals (goats, sheep) to man.

You cite Prof. Carl Moore's opinion that autotransplantation of the testis in rats and guinea-pigs fails to modify the picture of castration. However, the editorial does not embrace all the salient factors referred to in Moore's paper. Moore distinctly states that his results refer only to nonviable grafts (i. e., nonvascularized and nonincorporated). In order to present the matter fairly, I suggest with due respect that Moore's expressed opinion on viable grafts should have been quoted. He says: "It should be made clear that I am not here concerned with viable testis grafts. When a testis transplantation is made from the same or similar animals, and the graft of sufficient mass becomes thoroughly incorporated within the body and secretes, it can supplant the normal testicle as long as it secretes the hormone in sufficient quantities."

The work of Lipschütz, Hofmeister, Haberland, Enderlen, Lichtenstern, Schleyer and others in regard to the function of testicular transplants, and the clinical observation of their hormonal secretional ability in the human subject (either auto or homo transplants from near blood related anthropoids) cannot be questioned. Permanence of results has never been claimed by reputable surgeons.

It should be stated also that there are clear indications for testicular transplantation, such as the loss of the testes, (trauma, pathologic change) and the complexes that follow such loss. The sexual aspects of the question are quite secondary and the "rejuvenation" humbug only throws a barrage in the way of progress of a surgical procedure which, if indicated, is a real advance in therapeutics.

MAX THOREK, M.D., Chicago.

POSTURE IN SLEEP

To the Editor:—A recent observation, in connection with the article appearing in THE JOURNAL, June 28, on what positions the body assumes during sleep, may be of interest. One night last week a white man, aged 25, was brought to the Cook County Hospital because of extensive sunburn. The patient had completely disrobed in a secluded spot to take his first sun bath of the season. He fell asleep and thus remained for about two hours. When brought to the hospital that night he had a temperature of 101.6 F. The skin was diffusely and uniformly reddened, no one place more than another. The dorsal and ventral surfaces of the torso, and the flexor and extensor surfaces of the extremities, were all of the same scarlet flush. Of interest was the flexion-crease erythema similar to Pastia's lines in scarlatina. The inference was that, to obtain such a diffuse, uniform coat of sunburn, the man must have been constantly changing position during his sleep, thus exposing all the different surfaces of the body for nearly the same lengths of time.

LEWIS I. YOUNGER, M.D., Chicago.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

TREATMENT OF TUBERCULOUS CERVICAL ADENITIS

To the Editor:—Will you be kind enough to inform me through your column regarding the following: Is the optimum treatment for tuberculous cervical adenitis surgery or x-rays? Please omit name.

M.D., West Virginia.

ANSWER.—Treatment of tuberculous cervical adenitis must include not only systemic and local treatment but also, if possible, locate and remove the primary source of infection. This source is frequently found in the tonsils or nasopharynx. It may be necessary to remove one gland for diagnosis. If the tuberculous glands are small and there is no tendency to rapid abscess formation, a thorough course in roentgen therapy is usually indicated. A prompt improvement within three months may be expected in the majority of cases. With rapidly growing glands heavy irradiation may be necessary, but slower results must be expected.

In all cases which resist roentgen therapy, in large glands, and in cases in which softening is becoming apparent, radical resection of the glands is usually indicated.

In the presence of abscess formation, aspiration is advisable; when sinuses are present, curettement may be indicated. In either condition, roentgen therapy should also be used.

TOXICITY OF PHENOBARBITAL (LUMINAL)

To the Editor:—I am writing to inquire about the toxicity of phenobarbital (luminal). In my own experience this has been a safe drug to use over a period of time, and the only reference to its toxicity I have come across in reading mentioned that it had been found to produce abdominal paralysis due to intestinal spasms after years of use. A friend in England writes me that he has been warned against the protracted use of the drug, as it is "likely to produce paralysis of the nerves; that is, deadening of the nerves and brain, lack of control of the limbs, and eventually nervous prostration." This patient has been taking 1½ grains (0.1 Gm.) a day on the advice of his American physician. He is very anxious, and so am I, to learn the true state of affairs.

M.D., New Jersey.

ANSWER.—The "warning" is, no doubt, exaggerated. Patients taking such or larger dosage generally experience no other effect save a moderate degree of drowsiness that is generally subjectively pleasant and in no case leads epileptic patients to refuse the continued use of the remedy. Sometimes an excitation stage is noted at first, which disappears after habituation to the agent. Other side-effects are rather rare with such small dosage. Rashes or diarrhea may occur. Hebetude, a slurring of speech, a tendency to dizziness and nystagmus have been noted occasionally; but it may be stated unequivocally that the continued use of small doses of phenobarbital is less detrimental to the nervous system than permitting the occurrence of epileptic seizures. It is just as certain, however, that its continued use as a hypnotic in neurasthenia, without removal of the underlying cause of the "nervous exhaustion," may lead to the drug habit and an increase in the neurasthenic condition.

DIAGNOSTIC TESTS AND SIGNS

To the Editor:—In the *Archives of Ophthalmology* (**2**: 479 [Oct.] 1929) is the following dose of eponymic terms, none of which are to be found in the American Medical or Gould's Medical Dictionary. Will you define these: (1) Parisot and Richard's sign; (2) Slosse's Sign; (3) Ascoli and Faguioli's pituitrin test; (4) Bernard, Piedelievre and Claude test; (5) Potainian murmur.

COLIN M. HOLMES, M.D., Springfield, Mass.

ANSWER.—The signs referred to are discussed in the following references:

Marta, A.: Parisot and Richard's Test: Injection of Thyroid Extract to Determine Constitutional Type of Women, *Ann. di ostet* **50**: 350 (March 31) 1928.

Ascoli, M., and Faguioli, A.: Pituitrin Test, *Endocrinology* **4**: 33 (Jan.-March) 1920.

Bernard, S.; Piedelievre, R., and Claude, H.: Biologic Test of Endocrine Imbalance, *Paris méd.* **10**: 197 (Sept. 11) 1920; abstr. THE JOURNAL, Nov. 20, 1920, p. 1456.

Parisot, J., and Richard, G.: Sign of the Thyroid, *Bull. et mém. Soc. méd. d. hôp. de Paris* **46**: 806 (May 19) 1922.

Slosse, A., and Redding, R.: Sensibilité particulière des néoplasmes à l'action de la pituitrine, *Compt. rend Soc. de biol.* **95**: 1442 (Dec. 10) 1926; abstr. THE JOURNAL, March 19, 1927, p. 965.

Potain's syndrome includes disturbances of digestions with dilatation of the right ventricle and increase of the pulmonary sound.

IRITIS AS AN INDUSTRIAL DISEASE

To the Editor:—I have a patient, who is a cleaner and presser, and he has had two severe attacks of iritis. One attack in 1929 cleared up nicely. About three months ago it started bothering him again. The condition has improved and it would seem that it was going to clear up, but he would do some cleaning again and the condition would flare up. He uses Stoddard's solvent to clean with, and I am wondering whether you could give me any information as to whether or not this cleaning fluid is having anything to do with the iritis. I would be glad if you would send me literature on iritis as to etiology, prognosis and treatment, especially as to the cleaning fluid, if there is any literature on that phase of it.

T. T. SHACKELFORD, M.D., Haskell, Okla.

ANSWER.—Stoddard's solvent is a petroleum fraction in the boiling point range from 300 to 410 F. Its flash point is above 100 F. This solvent finds extensive use in dry cleaning because of lessened danger of flashing. Ordinary benzine, previously in wide use in this industry, has a boiling point range from 104 to 176 F. Natural gasoline may have an upper boiling point of 375 F., and some naphthas as high as 448 F. From the point of view of toxicity, Stoddard's solvent is akin to naphthas and benzine, although less dangerous, owing to its lesser volatility.

It is improbable that an iritis would arise as the sole manifestation of the action of this substance. It is capable of producing a conjunctivitis which might be followed by an iritis. Optic nerve injury might be followed by an iritis, but no evidence is here presented that such other lesions ever existed.

Work in high temperatures of any sort, and particularly heat associated with intense light, is regarded as unfavorable to eyes. The work of a presser is hot and steamy. Therein may be a possible etiologic factor. Too, inquiry should be made as to the use of benzene (benzol) as a cleaning agent, and, if so, the case should be investigated from that point of view.

Information as to various injuries and occupational diseases of the eye may be found in Kober and Hayhurst: Industrial Health, Philadelphia, P. Blakiston's Son and Company, 1924.

ALKALINITY OF URINE

To the Editor:—A man, aged 37, 67½ inches (170 cm.) tall, whose weight has not varied from about 140 (63.5 Kg.) pounds during the last five years, has had an alkaline urine for at least eighteen months. He uses a balanced diet, with maybe a slight excess of proteins. His health is apparently good, and no symptoms have been caused by the alkalinity except a slight burning sensation of the anterior urethra on urination. By rough tests no decrease in the alkaline reaction is noticed after drinking distilled water for several days. Large doses of sodium benzoate have made the reaction not more than neutral—never acid. What could be the cause of this continuous alkalinity of the urine? Please omit name.

M.D., Texas.

ANSWER.—An alkaline urine may occur normally under many conditions. The urine may be found alkaline after a full meal, or the reaction may vary with variations in the gastric secretion of acid. It may be alkaline with certain diets, as vegetables with a high content of salts of the organic acids, or vegetables and fruits containing acids of the fatty series which are oxidized to carbonic acid and are excreted as basic salts. The urine is alkaline in certain diseases, which are apparently not present in this case. It may be alkaline in some cases of chronic nephritis in which the ammonia coefficient is increased.

An ammoniacal decomposition of urine in the bladder, as occurs in cases of cystitis, must be carefully ruled out.

FOOD SENSITIVITY

To the Editor:—A woman, aged 54, has a mitral stenosis of long standing. The systolic blood pressure is 170; diastolic, 120. Urinalysis has always been negative. She cannot eat sweets and starches without developing a polyuria necessitating so much getting up at night as to be exhausting. She cannot eat meat of any kind except chicken without developing an "iron band" type of headache. In addition, milk produces an eczematous eruption of long standing that is quiescent under severe dieting. She is about 5 feet 7 inches (170 cm.) tall and weighs less than a hundred pounds. She is of a sanguine temperament and does not worry or complain, but the matter of getting something to eat is puzzling. Eliminating meat and carbohydrates does not leave a great deal, apparently with milk out of the question. Eggs are the same as meat. The bowels are naturally refractory under such a regimen. Any dietetic suggestions will be appreciated.

PAUL R. HOWARD, M.D., Wahjamega, Mich.

ANSWER.—Most likely this patient is sensitive to food proteins of various kinds. Instead of empirically eliminating foods, as she has done to an extent that remaining things are insufficient to maintain her nutrition, she should have a complete set of skin protein tests made for all of the foods and pick her diet from those that give a negative or slight reaction. Some of the things she has been omitting can probably be eaten safely.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

NEW HAMPSHIRE: Concord, Sept. 11-12, 1930. Sec., Dr. Charles Duncan, Concord, N. H.

NEW YORK: Albany, Buffalo, New York City, Syracuse, Sept. 15-18, 1930. Mr. H. J. Hamilton, State Education Bldg., Albany, N. Y.

OKLAHOMA: Oklahoma City, Sept. 9, 1930. Sec., Dr. J. M. Byrum, Shawnee, Okla.

PORTO RICO: San Juan, Sept. 2-13, 1930. Sec., Dr. Diego A. Biascoechea, 3 Allen St., San Juan, Porto Rico.

RHODE ISLAND: Providence, Oct. 2 and 3, 1930. Dir., Mr. L. A. Round, 319 State Office Bldg., Providence, R. I.

WISCONSIN: Milwaukee, Sept. 10, 1930. Special meeting for reciprocity cases. Sec., Dr. Robert E. Flynn, 315 State Bank Bldg., La Crosse, Wis.

THE SUCCESSFUL PHYSICIAN*

J. H. J. UPHAM, M.D.
Dean, Ohio State University College of Medicine
COLUMBUS, OHIO

From the dawn of history, down through the centuries, healing and religion have been allied. This was not strange in times when the majority of natural phenomena were not understood and were ascribed to supernatural powers. Certainly in no other activities of life were there greater mysteries than in the manifestations of health, disease and death. One saw friends, neighbors or members of his own family struck down in an utterly unexplainable way; epidemics swept communities—surely it was the vengeance of an angry or outraged God! On the other hand, just as inexplicably, some recovered from grave illnesses, pestilences departed, sparing here and there; surely again this was the work of a benign spirit, or a placated divinity! This has become almost a primitive instinct and is still a potent factor of our social life today. And why not?

As long as rationalistic science continues to fail in its efforts to explain the origin of life and disprove the life in a hereafter, just so long will man cling to the belief in his higher origin and lean on the comfort of a life after death. Just so long, also, will he in illness and suffering, while seeking material remedies for his ailments, concurrently hope for a spiritual blessing on the means employed and just so long will the wise physician recognize in this belief an actual addition to his power, fortifying his arm, sharpening his weapons, and adding force to his blows in the fight against disease. This may not appeal to the ultramodernist who would take from us all beliefs which cannot be proved and demonstrated. Such a one would seek to practice medicine along purely scientific lines, ignoring or even scorning such a thing as the *art* of medicine.

There is a *science* of medicine and an *art* of medicine. Assuming them to be quite separate and distinct theoretically, in the successful practice of medicine they are indissolubly joined.

Science through the dissecting room, the laboratory and by animal experimentation has laid the foundation and erected thereon the entire structure of modern medicine. It has done a marvelous work. It has enlisted the labors of the physicist, the biologist, the botanist and the chemist in the solution of the many problems. It has discovered the causes of many diseases and the methods of preventing their invasions as well as in combating their activities; it has shown us how to prevent and check epidemics so that many deadly scourges of the past have practically disappeared; it has outlined the definite courses of many diseases so as to enable us to know what to expect and what to guard against. While there are many problems still unsolved, we look with confidence to the future for their solution.

* Abstract of commencement address to the graduating class, June, 1930, Ohio State University College of Medicine.

Its one great failure, that which keeps modern medicine from being an exact science, is in the inability to gage that mysterious quality of inherent individual bodily resistance to disease, that factor of the personal equation, an undiscoverable unknown quantity which prevents the reducing of disease and its results in the human body to plain mathematical formulas.

The art of medicine also has its limitations and without science is altogether like faith without works—dead. It is something that may be stressed in the college course but cannot be actually taught; it has no recognizable place in the curriculum, yet its importance is widely conceded. It is acquired only through observation, contact with the sick, experience and thoughtful contemplation. It seeks to make the practice of medicine individualistic rather than along the popular modern ideas of mass production. It considers patients as personalities rather than as "cases." It endeavors to fit the remedy to the individual rather than the individual to the remedy. It takes into account the varying personal reactions, personal temperaments, familial influences and environments and in general humanizes the practice of medicine.

In the medical college the science of medicine is necessarily stressed as the foundation for all medical practice; the type of superstructure to be erected thereon is the life task of each individual and each must be his own builder.

In any community, one sees physicians whose lives show the varying trends of their building. Some suggest the laboratory; plain, unornamental, rendering perhaps great service to the scientific practice of medicine, but often unappreciated because of the lack of ostentation and financial returns. Others suggest the busy department stores, with all their hurry and bustle, of considerable popularity in the community but giving the impression of being operated chiefly for profit. Some recall the dazzling skyscrapers, objects of local pride and adding glory to their town or city. The greatest number suggest the American family home, sometimes modest, sometimes ornamental, but always comfortable, substantial and enduring; an emblem of happy successful living, and forming a great part of the solid body politic of our nation.

Sir William Osler, who has been styled the greatest physician of our times, whom we gladly claim as a member of the American medical profession for twenty fruitful years of his life, and to me the epitome of the wonderful possibilities of the happy combination of the science and art of medicine, was fond of saying that "work" is the "master-word" in the practice of medicine. Dr. William Allen Pusey remarked in a recent address that "Osler's dictum, like Carlyle's, that genius consists in infinite capacity for taking pains, is a half truth. Industry is essential, but the result in an intellectual calling depends upon the quality of the mind it energizes. It is not necessary for the man going into medicine to feel that he must be a lifelong drudge as the penalty of success." Pusey, therefore, claimed intelligence rather than work as the "master-word" in medicine and thereby tends to fall into the same error for which he criticizes Osler. Work—and hard work—is assuredly essential for conspicuous success in medicine, but excessive, driving drudgery is not and may even defeat its own ends. Intelligence is a tremendous asset, but unless properly applied and supplemented by industry it too fails of its goal. The great desideratum is the happy combination of the two; industry and thought, work intelligently directed, application and contemplation. These are the real "master-words" which speak for success in the practice of medicine.

A brief survey of the careers of the graduates of this institution in the past twenty years warrants the statement that every one who will apply himself or herself to practice with average industry, adhere to the principles taught and observe the moral and legal obligations of the community is practically guaranteed a comfortable living for the future. Should he exhibit more than the average industry, apply that added element of intelligent thought, and have certain qualities of astuteness common in successful business men, he may acquire financial independence or even moderate wealth. Should he possess exceptional qualities which make for great success in any of the walks of life, there are open the greatest possibilities, bounded only by individual limitations. I do not believe that the successful physician differs greatly, if at all, from successful men in the other activities of life, or that it requires a particular medical aptitude to achieve success.

Like most general statements, this has certain qualifying exceptions. The successful research worker must have a special type of mind; one which will not accept without question the ordinary beliefs and theories; he must be like the pioneers of old who sought new paths through the wilderness, felt the lure of the unknown and left the beaten tracks of thought and action.

The successful surgeon must possess, of course, manual dexterity but also a certain ruthlessness of temperament which enables him to inflict pain, if unavoidable, to destroy tissue, to maim possibly, to shut his ears and heart to temporary suffering to the end that life may be saved and eventual good result.

The practitioner is fortunate if he possesses tact, patience, toleration and wholesome human sympathy, to say nothing of a saving sense of humor.

One hears not infrequently the expression, a "natural doctor." Such a characterization is like "the purple cow," the loo-loo bird or other mythical creatures, and when applied personally is more an affectionate use of a commendatory term rather than a scientific classification. The possession of the general aptitudes and characteristics that make for success in any business or profession and with a fair degree of the special qualities previously mentioned will make equally for success in medical practice. This, I say, not to discourage any who may have thought of themselves as naturally inclined as physicians, but rather to comfort the majority who have failed to feel any special election or "call" to medical practice, and to assure every one that possibilities of success, yes, outstanding success, are open, dependent only on individual effort, energy, industry, intelligence and steadfastness of character.

Kansas June Examination

Dr. Albert S. Ross, secretary of the Board of Medical Registration and Examination of Kansas, reports the written and practical examination held at Topeka, June 17-19, 1930. The examination covered 10 subjects and included 100 questions. An average of 75 per cent was required to pass. Sixty-two candidates were examined and passed. Sixteen physicians were licensed through reciprocity with other states. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
Northwestern University Medical School	(1930)	85.1,	86.5, 87.1
Rush Medical College	(1930)		85.9
University of Kansas School of Medicine	(1930)	83.3, 85.1,	86.5, 86.7, 86.8, 86.9, 87, 87.2, 87.4, 87.4, 87.5, 87.6, 87.8, 87.9, 87.9, 88, 88, 88.1, 88.2, 88.2, 88.3, 88.6, 88.8, 88.9, 88.9, 89, 89.1, 89.2, 89.2, 89.3, 89.6, 90, 90, 90.6, 90.7, 91.2, 91.2, 91.2, 91.3, 94.3
Harvard University Medical College	(1930)		91.3
University of Minnesota Medical School	(1929)		87.6*
* This applicant has received an M.B. degree and will receive an M.D. degree on completion of 1 yrs. internship in a hospital.			
Creighton University School of Medicine	(1925)	84.3, (1929)	89.4, (1930) 85.1, 87.2, 87.5, 87.5, 87.7, 88, 88, 89.9
University of Nebraska College of Medicine	(1930)	86.7, 86.8,	87, 88.5
Columbia University College of Physicians & Surgeons	(1929)		91.5
University of Wiscosin Medical School	(1929)		91.6

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity With
University of Arkansas School of Medicine	(1927)	(1929)	Arkansas
Bennett Medical College, Chicago	(1909)		Nebraska
Rush Medical College	(1919) Iowa	(1929)	Illinois
State University of Iowa College of Medicine	(1922)	(1924)	Iowa
University of Maryland School of Medicine	(1921)		Maryland
Washington University School of Medicine	(1909) (1925) (1927)	(1928)	Missouri
Creighton University School of Medicine	(1923)		Nebraska
Lincoln Medical School	(1902)		Nebraska
Eclectic Medical School of Cincinnati	(1929)		Ohio
Western Reserve University School of Medicine	(1893)		Ohio

Book Notices

STUDY OF THE COAL-TAR PITCH, WITH SPECIAL REGARD TO ITS EPITHELIOMA-PRODUCING FACTOR. By S. Shibata. Monographiae Actorum Dermatologicorum. A. Series Dermatologica. No. 5. Paper. Pp. 106. Kyoto: Instit. Dermatosyphil., Universitas Imperialis, 1929.

A large number of studies have been made to determine the carcinogenic substance or substances in coal tar. At the present stage of investigation it seems probable that no specific substance can be incriminated. In general, the fraction produced by distillation at high temperature has been found more effective than that obtained at lower temperatures. The residual pitch has been found to be carcinogenic both in man and in animals. This monograph is a study of the carcinogenic properties of the fractions obtained by distillation of pitch, those being selected which are acid, neutral or alkaline. The neutral portion is most active in producing growths in the rabbit, and, of the neutral fractions, those distilling between 200 and 240 degrees at a pressure of 4 mm. were more active than the others, thus confirming in a general way the investigations hitherto made. The text of the monograph is in Japanese, but there is a four page abstract in English which gives conclusions. It might be mentioned in passing that, in much of the tar work with rabbits, while papillomas are easily produced, the term "carcinoma" has been too frequently applied by incautious investigators to neoplasms which may regress spontaneously, are curable by very small amounts of x-rays, do not metastasize, and are not inoculable, so that they should be considered to be papillomas. The author's photomicrographs show that most of the growths produced were not true carcinomas; but this matter has nothing to do with the main point of his study, which was to determine the effects of different fractions of the pitch in producing growths resembling epitheliomas.

STRÜMPELL-SEYFARTH LEHRBUCH DER SPEZIELLEN PATHOLOGIE UND THERAPIE DER INNEREN KRANKHEITEN FÜR STUDIERENDE UND ÄRZTE. Band I. Von Dr. Med. et Phil. C. Seyfarth, a. o. Professor (für innere Medizin) an der Universität Leipzig. Twenty-ninth and thirtieth edition. Cloth. Price, 25 marks. Pp. 880, with 188 illustrations. Leipzig: F. C. W. Vogel, 1930.

This is really a reprinting with few alterations. In this volume the pages are numbered the same as in the twenty-eighth edition; the text is identical, page for page, with the edition printed last year, except in a few places where the use of finer type has allowed the introduction of new material. In a single small paragraph on page 397, comments are made on the failure to bring about any benefit by treating tuberculosis with serums supposed to possess curative properties. A remedy suggested by Friedmann consisting of a suspension of living bacilli of the tuberculosis of cold blooded animals, turtles especially, does possess, according to Seyfarth, some advantages as a vaccine useful in tuberculosis of bones and lymph glands, but not in pulmonary tuberculosis. Another short statement on page 398 sets forth details of the Gerson diet for tuberculosis and commends it when the disease is in the bones or joints. There is but little meat in this regimen; principally fresh fruit and vegetables, milk, especially raw milk, butter without salt, fats, oils, eggs, rice and fresh fish, also "Phosphorlebertran" and "Mineralogen," evidently proprietary remedies. More new material is found on page 403. It also concerns tuberculosis, discussing the treatment by collapsing the lung or lungs, or by securing rest for the diseased tissue through surgical measures. Modifications are found in the dietetic treatment of gastric ulcer on page 667, and two new roentgenographic illustrations are added to plate X by reducing the size of those in the preceding edition. One of these new illustrations is the shadow of a substernal goiter, the other that of a mediastinal lymphosarcoma. The chief departure in this new printing is the account of psittacosis on page 244. It is brief but adequate and timely. In the twenty-eighth edition this mysterious illness was disposed of in three lines (p. 352) under unusual pneumonias. A time must come when annual new editions of a textbook running through as many revisions as this one has require but few changes; the merit of the book has been maintained by just such slight alterations year by year ever since its appearance in 1883; few medical works possess a similar record.

METHODS AND PROBLEMS OF MEDICAL EDUCATION. (Sixteenth Series.) Paper. Pp. 251, with illustrations. New York: Rockefeller Foundation, 1930.

This report deals with the departments of anatomy, histology and embryology. There are twenty-five articles in all, twenty-four of which are descriptions of departments of anatomy, histology and embryology in universities in the United States, Australia, South America, Canada, Europe, Asia and New Zealand. Each article is fully illustrated with floor plans, pictures of the buildings and interiors. The first article, by Dr. Lewis H. Weed of Johns Hopkins University, is a plan for a department of anatomy. From this report one can obtain a comprehensive idea of the teaching of anatomy, histology and embryology all over the world.

PRAKTISCHES LEHRBUCH DER KINDERTUBERKULOSE. Von Dr. Georg Simon, Chefarzt der Kinderheilstätte Aprath, und Dr. Franz Redeker, Kreisarzt und Medinzinalrat in Mansfeld. Second edition. Paper. Price, 64 marks. Pp. 740, with 412 illustrations. Leipzig: Curt Kabitzsch, 1930.

This is a critical review of the literature of tuberculosis in children and, in addition, presents much original matter by the authors. Those who have read the previous work, by Redeker and Walther, "Die Entstehung und Entwickelung der Lungenschwindsucht des Erwachsenen," will appreciate the thoroughness with which the present volume has been prepared. The references are numerous, more than 800 authors being cited from publications dating back even to the year 1876. These references have been carefully studied and have been approved or disapproved by the authors. Although the writers use many words that are long even for a German, and coin others, the book is clear and of great interest. Its scope includes tuberculosis of the lungs, glands, bones, abdominal viscera, skin and brain. Bronchiectasis in children, with methods of diagnosis, is given considerable space without, however, any suggestions for treatment. The authors discuss the treatment of pulmonary tuberculosis, as far as children are concerned, of course, quite thoroughly, taking up rest, sunlight, artificial pneumothorax, unilateral and bilateral, phrenico-exeresis and thoracoplasty. Bilateral pneumothorax in connection with evulsion of the phrenic nerve is discussed and disapproved. The authors regard repeated infections, and exanthems, as factors in the development of tuberculosis in children, the results of infections becoming less severe as the years pass; all irritations and instability of the vegetative nervous system are to be regarded as contributory. The nutritional condition is not considered of the importance hitherto supposed, although undernourishment may make the prognosis less favorable; physical training and good body habits are of great benefit, and domiciliary hygiene influences the preceding factors. The book is rich in statistics and roentgenograms. It is not to be recommended for the student, as it is more suitable for the specialist who is advanced in his field.

THE PSYCHIATRIC STUDY OF PROBLEM CHILDREN. By Sanger Brown II, M.D., Assistant Commissioner, Department of Mental Hygiene, State of New York, and Howard W. Potter, M.D., Assistant Director, Psychiatric Institute and Hospital. Cloth. Price, $1.50. Pp. 152. Albany: New York State Department of Mental Hygiene, 1930.

Discovering the etiology of problems arising in children which make them behave abnormally, or which obstruct the learning process offers greater difficulty than diagnosing some rare medical disorder. The problems may arise from varied sources. The difficulty may be due to some physical defect, to superior or defective intelligence, to a psychoneurosis, or to poor management. To arrive at a diagnosis necessitates careful inquiry from all angles. This book presents an outline of the methods to be used in studying problem children. While it would be impossible to adhere rigidly to the methods presented on all occasions, the book will make a satisfactory guide. It will be found useful to physicians, psychologists and social workers.

Medicolegal

Life Insurance and Misrepresentations by Insured

(Chase v. Sunset Mutual Life Ass'n (Calif.), 281 P. 1054)

April 5, 1927, Henry Niel Chase applied for life insurance, representing that he was in good health. April 7, he had a sudden attack of illness, apparently characterized by abdominal pain, from which he speedily recovered. April 11, a life insurance policy was issued to him, and on the same day he had a recurrent attack of illness. He was taken to a hospital, April 14; operated on, April 16, and died, April 22. The death certificate gave the cause of death as "myocarditis post operative paralytis illem impacted stone in uretur." Suit was brought by the beneficiary to recover under the policy. From a judgment in favor of the beneficiary, the insurer appealed to the District Court of Appeal, Fourth District, California.

The insurer contended that the policy was issued in reliance on representations by the insured that he was in good health, which he knew to be false and made with intent to defraud, whereas he had suffered for a considerable time from a diseased gallbladder, from which he died. The unlikelihood of a patient reaching the stage of disease that the insured was in at the time of the operation, without becoming aware of the presence of some serious ailment, is apparent, said the District Court, but it is purely a matter of inference that he did so. There was no direct evidence to show that he knowingly misrepresented his condition. The trial court was justified in finding that when he signed the application he considered himself a well man. There is nothing to indicate that he regarded seriously the attack of illness two days later. It was not until April 11 that his trouble recurred and he learned that it would probably be necessary for him to go to the hospital for an operation. His actual condition was determined through the operation, April 16. Then it developed that he was suffering "from a gall [sic] stone impacted in the passage from the kidneys to the bladder," but how long this condition had existed did not appear. The medical evidence was to the effect that he might not have been conscious of any severe pain until the stone passed from the kidney. It appeared, too, that myocarditis, named as the cause of death, might have existed for some time without the insured being aware of any serious condition.

There was nothing in the policy requiring the insured to give notice to the insurer of any attack of illness that might occur between the filing of his application and the issuance of the policy. There was nothing to show that the insured had ever been informed of any necessity for his making any report of such intercurrent illness. If, after the date of his application and his representations as to his physical condition and before the policy was issued, the insured was aware that he was afflicted with a serious disease, it was his duty to inform the insurer of that fact. The record indicates, however, that the insured was not aware of the existence of any such condition as would lead him to apprehend that his life or health was seriously in danger.

The judgment of the trial court in favor of the beneficiary under the policy was affirmed.

Admissibility of Dying Declarations

(Penn v. State (Neb.), 227 N. W. 314)

Johnson was dying from gunshot wounds. When it was manifest that he realized that he could not live, a written statement of the events as they were alleged to have occurred on the night of the shooting was read to him sentence by sentence. At the end of each sentence, he was asked if it was correct and given an opportunity to make corrections. At the end of the statement, he was asked if the prepared statement, as corrected by him, was correct. He replied that it was, and signed it. The defendant, convicted of murder, appealed to the Supreme Court of Nebraska and criticized, among other things, the admission in evidence of the written declaration, because it was first reduced to writing on information furnished to the scrivener by another than the declarant and because of the effect of changes made by the declarant, which, it was alleged, created certain inconsistencies in the declaration. These matters, however, said the Supreme Court, went to the weight and value of the evidence. They were proper subjects for argument to the jury, rather than for argument for the Supreme Court. In *Edwards* v. *State*, 113 Neb. 698, 204 N. W. 780, a dying declaration, prepared in narrative form, read to the victim of an illegal operation, and signed by her, was received in evidence by the trial court, and the action of the court was sustained. Of similar purport is *Mathews* v. *State*, 111 Neb. 593, 197 N. W. 602.

In the course of the trial, a juror became ill. Thereupon the court admonished the jury as to its duties and adjourned the trial until he recovered. The adjournment lasted from Dec. 6 or 7, 1928, to Jan. 2, 1929. When the court assembled to resume the trial, after the recovery of the sick juryman, the defendant objected on account of the unreasonable adjournment and delay, during which time the jurors had been at large and outside of the supervision and control of the court. The objection was overruled. The record failed to show, said the court, prejudice in this aspect of the case, and it showed no attempt on behalf of the defendant to ascertain whether any juror had been contaminated during the recess. To reverse the judgment of a trial court on such a point would be destructive of the exercise of that independent discretion of trial judges which seems to have been used with fairness in this instance. In a similar case, *Ossenkop* v. *State*, 86 Neb. 539, 126 N. W. 72, after the state had made its case in chief in a prosecution for murder in the second degree, the jury was admonished and an order made permitting it to separate for twenty-one days, on the ground that four of the defendant's witnesses had been quarantined on account of smallpox; and this was held not to be an abuse of discretion or reversible error, where the record failed to show misconduct on the part of any juror or any prejudice to any defendant.

The conviction of murder in the first degree and the verdict of the jury fixing the penalty of life imprisonment were affirmed.

Workmen's Compensation Acts: Carbon Monoxide Poisoning of Garage Employee Compensable.—A hazard arising from the presence of carbon monoxide gas is one incidental to employment in a garage. Especially is this true in winter, when a denser smoke comes from the exhaust of the automobiles and when the doors of the building must of necessity be kept closed. How, then, can it be said that the death of the deceased from carbon monoxide poisoning was not by accident arising out of and in the course of his employment, unless it was because the particular risk was occasioned by his own heedless act in starting the motor when the doors, both of the automobile and of the building, were closed? That act, regardless of how heedlessly it was performed, was not wholly dissociated from and foreign to his employment, for, granting that it was primarily designed to serve his own personal convenience, it tended also to react ultimately to the benefit of the employer as well, since its evident purpose was to keep the deceased warm enough to enable him to continue with his work in comfort. The hazard created was one by no means unusual in a garage; it bore a direct relation to the character of the employment in which the deceased was engaged; it was present in greater or less degree, no matter how carefully the garage was conducted; and the fact that the act of the deceased himself gave rise to the hazard is of no vital significance, so long as it was not wholly outside the scope of his employment, since the question of negligence, whether it be termed contributory or sole negligence, is of no consequence in a proceeding of this character, unless it be made to bear upon the question of intentional self-inflicted injury. There was a sufficient causal connection shown between the nature of the employment of the deceased and the hazard which produced his death to warrant a finding that his death was due to an accident arising out of and in the course of his employment and was therefore compensable.—*Jackson v. Euclid-Pine Inv. Co. (Mo.), 22 S. W. (2d) 849.*

Society Proceedings

COMING MEETINGS

American Association of Obstetricians, Gynecologists and Abdominal Surgeons, Niagara Falls, Canada, September 15-17. Dr. James E. Davis, 1825 Geddes Avenue, Ann Arbor, Mich., Secretary.

American Physical Therapy Association, Chicago, Oct. 6-10. Dr. C. C. Vinton, 1650 Broadway, New York, Secretary.

American Roentgen Ray Society, West Baden, Ind., September 23-26. Dr. John T. Murphy, 421 Michigan Street, Toledo, Ohio, Secretary.

Associated Anesthetists of the United States and Canada, Winnipeg, August 28-31. Dr. F. H. McMechan, 770 West Lake Road, Avon Lake, Ohio, Secretary.

Association of Military Surgeons of the United States, Washington, D. C., Sept. 25-27. Dr. J. R. Kean, Army Medical Museum, Seventh and B Streets, Washington, D. C., Secretary.

Colorado State Medical Society, Pueblo, September 9-11. Mr. H. T. Sethman, Metropolitan Building, Denver, Executive Secretary.

Delaware, Medical Society of, Dover, Oct. 7-8. Dr. W. O. La Motte, Medical Arts Building, Wilmington, Secretary.

Indiana State Medical Association, Fort Wayne, September 24-26. Mr. T. A. Hendricks, Hume-Mansur Bldg., Indianapolis, Executive Sec'y.

Kentucky State Medical Association, Bowling Green, September 15-18. Dr. A. T. McCormack, 532 West Main Street, Louisville, Secretary.

Michigan State Medical Society, Benton Harbor, September 15-17. Dr. F. C. Warnshuis, 148 Monroe Avenue, Grand Rapids, Secretary.

National Medical Association, Indianapolis, August 18-22. Dr. Walter G. Alexander, 136 West Kinney Street, Newark, N. J., Secretary.

Nevada State Medical Association, Reno, September 26-27. Dr. H. J. Brown, Box 688, Reno, Secretary.

Oregon State Medical Society, Portland, September 18-20. Dr. F. D. Stricker, 301 Oak Street, Portland, Secretary.

Pacific Association of Railway Surgeons, San Diego, Calif., August 22-23. Dr. W. T. Cummins, Southern Pacific General Hospital, San Francisco, Secretary.

Pacific Coast Oto-Ophthalmological Society, Victoria, B. C., Canada, September 4-6. Dr. Walter F. Hoffman, 817 Summit Avenue, Seattle, Secretary.

Pennsylvania, Medical Society of the State of, Johnstown, Oct. 6-9. Dr. Walter F. Donaldson, 500 Penn Avenue, Pittsburgh, Secretary.

Utah State Medical Association, Salt Lake City, September 9-11. Dr. M. M. Critchlow, Boston Building, Salt Lake City, Secretary.

Vermont State Medical Society, Burlington, October 2-3. D. William G. Ricker, 33 Main Street, St. Johnsbury, Secretary.

Washington State Medical Association, Bellingham, September 9-11. Dr. C. H. Thomson, 1305 Fourth Avenue, Seattle, Secretary.

Western Branch of the American Urological Association, Los Angeles, September 4-6. Dr. H. W. Howard, 193 Eleventh Street, Portland, Ore., Secretary.

Wisconsin, State Medical Society of, Milwaukee, September 10-13. Mr. J. G. Crownhart, 119 E. Washington Ave., Madison, Executive Sec'y.

AMERICAN HEART ASSOCIATION

Sixth Annual Meeting, held in Detroit, June 24, 1930

The President, DR. WILLIAM H. ROBEY, Boston, in the Chair

The Differentiation of Syphilitic from Functional and Other Forms of Aortic Insufficiency

DR. LESLIE T. GAGER, Washington, D. C.: Rheumatic fever prevails as the chief cause of heart disease in New York and New England. Farther south syphilis, especially in the Negro, comes to the fore in the cardiovascular lesions of early and middle adult life. Diagnostic leanings toward these two factors become easy in these two regions. I have made the following classification of aortic insufficiency:

I. With basal diastolic murmur:
  A. True insufficiency:
    Valve lesions due to.....
      1. Malformation.
      2. Trauma.
      3. Endocarditis.
      4. Syphilis.
      5. Sclerosis.
  B. Functional or relative insufficiency:
    Dilatation of aortic ring, without valve lesion.
      1. Dilatation of aorta by hypertension.
      2. Dilatation of left ventricle, anemia; failure.
      3. External traction; adherent pericardium.

II. With accentuation of aortic second sound, obscuring a diastolic murmur, or coinciding or alternating with it:
  Due to atheromatous, and usually dilated, aorta.

III. With an apical diastolic murmur only (transmitted from the aortic area).

IV. With no diastolic murmur audible (peripheral signs only).

V. Pseudo-insufficiency (with a diastolic murmur arising elsewhere than in the aortic area: pneumonic insufficiency [Graham Steell]); Septal defect; accidental.

In the course of studying aortic insufficiency and diastolic murmurs under conditions such as race, age, sex and climate, which make syphilis the outstanding etiologic factor, exceptions have been found frequently enough to show a plurality of causes and mechanisms. Not the least interesting observation has been that of relative aortic insufficiency. Differentiation requires avoiding a diagnostic bias and giving attention to the whole clinical picture.

DISCUSSION

DR. F. N. WILSON, Ann Arbor, Mich.: The importance of this condition depends on the frequency of the cases. In my own experience, 90 per cent of cases of aortic insufficiency have been rheumatic. I know that arteriosclerotic insufficiency occurs, but it is rare. It is never free aortic regurgitation associated with marked vascular lesions. There are rare cases in subacute bacterial endocarditis or acute bacterial endocarditis, and also congenital cases. I have never seen simple or functional cases. I have no doubt that there are accidental murmurs, and there may be functional dilatation of the aortic ring. I have seen only organic cases and I think that most cases of free regurgitation are syphilitic. One sign that should lead one to suspect syphilitic involvement is when one can feel the beat of the heart with the fingers on the cricoid cartilage. The presence of palpable pulsation at that point is suggestive. I think the change in the aortic second sound is different from that in arteriosclerosis. It has different resonance. The aorta is altered in its length, but it is not dilated as in aortitis.

DR. H. S. FEIL, Cleveland: Some years ago I studied the pulse in a large series of such cases. It was characteristic. When there are signs of free regurgitation the case is syphilitic, but when there are signs of obstruction or stenosis in the pulse curve this is significant of a rheumatic or sclerotic lesion.

DR. T. S. LEE, Washington, D. C.: I think Dr. Wilson's remarks are well taken. The burden of proof belongs to those who have to show it is not an organic condition. I sometimes have patients with functional systolic murmurs. One old lady had an atheromatous condition with a typical long diastolic murmur after severe fits of coughing, with stress on the circulation. Sometimes these cases are temporary, sometimes permanent, but they are rare.

DR. L. T. GAGER, Washington, D. C.: I do not want to leave the impression that the majority of cases I see in Washington are not syphilitic; they are; but every now and then I get one which is diagnosed as syphilis but which is not. This of course alters the therapeutic outlook.

The Relation of Syphilis to Hypertension

DRS. E. F. HORINE and M. M. WEISS, Louisville, Ky.: This study was undertaken to determine what relation, if any, syphilis bears to hypertension. An effort was made to determine whether the incidence of syphilis was greater among hypertensive individuals than among a group of controls. We believe that essential hypertension is an arteriolar disease. The microscopic observations in syphilitic involvement of the arteries are quite different from those of hypertension. Syphilis has been suspected of causing hypertension because in certain groups it was the only condition mentioned in the history. We have examined 666 patients with essential hypertension, and also 2,000 nonhypertensive cases, as a control group. The incidence of syphilis was practically the same in the two groups. Our conclusions are, therefore, that syphilis cannot have any etiologic bearing on essential hypertension.

Clinical Heart Observations in Children with Congenital Syphilis

DR. GIUSEPPE PREVITALI, New York: My study covers fifty cases of congenital syphilis. Case histories were taken with particular reference to rheumatic infection; complete physical examination was made; teleroentgenograms and electrocardiograms were made in each case. A record was made of the blood Wassermann reaction and of any previous treatment. Finally the cases were grouped as regards age and sex. The study included twenty-eight girls and twenty-two boys. The youngest was 4 weeks of age and the oldest 14 years.

Forty-six of the fifty were under 11 years; fourteen under 2 years, and nine under 1 year. In every case the blood Wassermann reaction was 4 plus on admission, and the syphilitic history was confirmed by tests on parents and siblings. At the time of examination thirty-two patients had a 4 plus Wassermann reaction; one had 2 plus; three had 1 plus, and fourteen had a negative Wassermann reaction; the latter children had been under treatment for periods of from three months to twelve years. The summary of our observations in this group of fifty cases was as follows: Physical examination of the heart was negative; rheumatic lesions were not present; the average blood pressure was 93 systolic and 51 diastolic, giving a pulse pressure of 42, the normal being from 27 to 30. Teleroentgenograms showed a normal ratio between the transverse cardiac diameter and the pulmonic fields. The aortic arch was in no case widened. Electrocardiograms showed normal rhythm with no delay in conduction, no abnormalities of deflection, but frequent low voltage. The observations in children who had received no treatment were the same as those in whom the Wassermann reaction had been rendered negative by treatment. Children of different age groups showed no variations in their physical signs.

Heart Disease in Children Due to Congenital Syphilis

DR. THURMAN B. GIVAN, Brooklyn: Four hundred cases of congenital syphilis were studied in children who had outstanding signs of the disease. The total number of cases observed with this disease in the past ten years exceeds 2,000. Included in the data were autopsy records, roentgenologic and electrocardiographic reports and laboratory observations. Blood stream invasion by spirochetes in the unborn infant may cause varying degrees of injury; hence, anything from a macerated fetus to a well developed living infant may be developed. Many of these infants die during the first few months after birth. Autopsy shows invasion by the spirochetes of various tissues; namely, the liver, spleen, lungs, osteochondral portions of the long bones, and often the myocardium. Death is usually from syphilitic meningitis, not from heart lesions; but what happens to children with syphilitic lesions of the heart and aorta if they survive and grow up? And some do. Our examination of 417 cases of congenital syphilis, ranging in age from 3 months to 42 years, with especial reference to *Spirochaeta pallida*, has shown that up to the present not one has given signs that would lead one to make a diagnosis of syphilitic heart disease. Likewise, 287 patients who had received antisyphilitic treatment had similar examinations. In none of these did the heart show abnormalities. The fact that the pulmonic second sound in children is normally louder than the aortic second sound was an aid in reaching the foregoing conclusions. Any patient showing the aortic second sound equal to or louder than the pulmonic second sound was selected for a more careful survey. Taking interstitial keratitis as a sign of a lighting up process in congenital syphilis tarda, I examined patients during this phase for cardiac changes, but these were not observed. Allowing eighteen or twenty years for syphilitic heart changes to take place, I took special pains to follow up patients more than 16 years of age. Sixty-one of these showed no cardiac abnormalities. Syphilologists warn us of the use of arsenicals in cases of syphilitic cardiac disease. In my series I did not have a single case in which it was necessary to suspend the drug on account of cardiac symptoms.

Principles Underlying the Treatment of Cardiovascular Syphilis

DR. UDO J. WILE, Ann Arbor, Mich.: Lesions of the heart are rare in early syphilis; the large proportion of pathologic changes occur later in the heart and great vessels, which are the most serious syphilitic visceropathies. This late group is divided into cases in which syphilitic disease is still active, and those in which the mechanical end-results are progressing by degenerative changes rather than by inroads of the disease itself.

In a small number of early cases that I have seen in which tachycardia, arrhythmias and syncope occurred, I have found that these responded well to energetic treatment in which heavy metals formed the background and arsenicals were used sparingly. In the latter types the following groups must be distinguished as therapeutic problems: (*a*) energetically treated asymptomatic cases; (*b*) energetically treated cases in which cardiac dysfunction exists; (*c*) inadequately treated asymptomatic cases; (*d*) inadequately treated cases with cardiovascular dysfunction; (*e*) a group in which cardiovascular disease, symptomatic or asymptomatic, is associated with clinically prominent syphilitic visceropathies. Broadly speaking, in group *a* it is frequently wise to withhold all treatment, in spite of serologic evidence. Cases may be endlessly and futilely treated in the effort to reverse a biologic test. In group *b* well treated before cardiac disease, as long as there is dysfunction the cases should not be treated as syphilis. The therapeutic problem is one of heart failure. In group *c*, adequately treated early, and with asymptomatic cardiac disease, much may be accomplished by judicious antisyphilitic treatment. Cardiac dysfunction may be indefinitely postponed. Dispersion of syphilitic foci in other portions of the body contributes to their improvement. Group *d*, or inadequately treated cases, with cardiac dysfunction, present a delicate therapeutic problem. They should not be treated for syphilitic disease during decompensation. After proper rest, digitalization and building up of cardiac reserve, a conservative treatment of the old syphilis is of benefit. I would emphasize here that arsphenamine is contraindicated in patients recovering from heart failure. Absorption of syphilitic residua and replacement by fibrosis are better accomplished slowly than by energetic therapy; potassium iodide or mercury or bismuth compounds are better than arsenicals. Tryparsamide, which is useful in neurosyphilis, is also of benefit in cardiovascular syphilis, especially in aortitis and early aneurysmal dilatations. It has both tonic and specific effect.

The group of cases with coronary disease are variously benefitted by antisyphilitic treatment; as a rule, younger persons respond well; in older people it is not successful. Aneurysm in my experience is rarely benefited.

Treatment of Cardiovascular Syphilis

DRS. J. E. MOORE and J. H. DANGLADE, Baltimore: In order to avoid objections as to inaccurate diagnosis we have used only cases presenting syphilitic aortic insufficiency and aortic aneurysm. Our clinical records contain 222 cases of aortic regurgitation and 93 of aneurysm. We have been able to follow up 90 cases of the former and 43 of the latter. The study is still in progress. We have added 3 patients with syphilitic aortitis, 3 with syphilitic myocarditis and 2 with angina pectoris, bringing the total to 141 cases studied. The results of our study show that the treatment of cardiovascular syphilis is best accomplished by a combination of such routine measures as rest, restriction of activities, and digitalis, together with antisyphilitic treatment. An acceptable method of the latter is based on the avoidance of therapeutic shock (the Herxheimer reaction) and the therapeutic paradox, by starting treatment cautiously with bismuth or mercury and the iodides; by the use of a long course of small doses of neoarsphenamine or sulpharsphenamine bismuth, and by the prolongation of treatment for a minimum of two years, with alternation of a course of these drugs. A study of forty-three cases of aortic aneurysm demonstrates that life may be prolonged from an average of nine months from the onset of symptoms in untreated patients to an average of sixty-nine months in patients receiving one year or more of such treatment. A study of ninety cases of aortic regurgitation and eight of various other forms of syphilitic cardiovascular disease shows that life may be prolonged from an average of thirty-two months from the onset of symptoms in untreated patients to an average of sixty-five months in patients receiving one year or more of such treatment. These data seem to demonstrate that properly directed antisyphilitic treatment is of great value in cardiovascular syphilis.

DISCUSSION

DR. E. P. CARTER, Baltimore: This study has made patent the fact that in certain conditions, with proper supervision and proper therapeutic care, a great deal can be accomplished in patients with cardiovascular syphilis. The question of the subjective relief of symptoms has not been touched on but the

evidence seems to support the view, which is rather against the impression of the men in syphilis clinics, that careful, systematic treatment of cardiovascular syphilis is well worth while.

DR. ALEXANDER LAMBERT, New York: In looking back over the experience of thirty-six years at Bellevue Hospital I can feel a degree of satisfaction that a great deal of benefit can be given to cardiovascular syphilitic cases, if treatment is persisted in, and if the patients come under the care of a cardiac clinic they do as well as other patients under the circumstances. The trouble is that as soon as they get better they get careless and drop all forms of treatment and of course they revert; but the idea that syphilis cannot be treated successfully is erroneous. The old idea was right that syphilis was the one thing that could be treated by mercury. That is the experience of more than one generation.

DR. I. E. MOORE, Baltimore: The most important thing in the discussion is really repetition. Dr. Wile made the statement four or five years ago that treatment of cardiovascular syphilis in the prearsphenamine days was satisfactory. Then arsphenamine was introduced and used with misguided enthusiasm. I was one who made mistakes. The generation growing up now was impressed with the amount of harm that was done and they returned to nothing but rest and digitalis. I think it is clear that, if the methods of treatment are revised to include the use of drugs with more caution, better results in the treatment of cardiovascular disease will be obtained.

Treatment of Syphilitic Aortic Regurgitation with Congestive Heart Failure

DRS. G. R. HERRMANN and S. C. JAMISON, New Orleans: The outlook of congestive heart failure with syphilitic aortitis is a gloomy one. Treatment is of little avail and rest for months is necessary to reestablish any circulatory equilibrium. We give here a preliminary report on an analysis (not yet complete) of our last 100 cases of syphilitic aortic regurgitation with congestive heart failure. We have required for the diagnosis, besides evidence of free aortic regurgitation, concomitant vascular phenomenon and signs in peripheral vessels, throbbing water hammer pulsation, capillary pulse, Duroziez's diastolic murmur in the larger arteries, high pulse pressure with especially low diastolic blood pressure levels; evidences of increased aortic dulness; abnormally increased diameter of the aortic semicircle in the teleroentgenogram, and also history of syphilitic or venereal infection, and absence of rheumatic disease.

Our series of 100 cases gave a positive history in 37 cases; positive Wassermann reaction in 73 cases, negative in 18. The distribution was as follows: black males, 61; white males, 25; black females, 10; white females, 4. Deaths to date have numbered 38. There were 17 patients living and 45 not heard from. The average age for all groups was 45.3 years. A history of chancre was given in only 38 cases. The time duration between initial lesions and onset of symptoms averaged 17.8 years. The time average interval between the onset of cardiac insufficiency and death, or of the last observation if living, was 23.1 months.

Scott's 25 patients ran a progressively downhill course and all died within a year. Our patients averaged 23.1 months, and the highest still living is 126 months after onset. Our material is similar to that of Scott. Cases were drawn from a charity hospital. All the patients were laborers. Seventy per cent were black, 30 per cent white; 85 per cent were males. The patients had to be discharged as soon as possible, though this was often highly undesirable. The rest factor, though highly important, was minimal. Drug therapy must therefore have been important. Neoarsphenamine was used as a primary form of treatment. Thirty-four patients received this drug in varying small doses; 26 lived, none died, 8 were unheard from. Digitalis was administered in large doses first, then smaller doses, to 33 patients. Of these, 3 lived, 13 died, and 17 were unheard from. Ouabain was used in 18 cases, followed by small doses of digitalis. None of these patients were among the living. Mixed treatment was used for 54 patients; 12 lived, 22 died and 20 were not heard from. Potassium iodide was given 54 patients; 11 lived, 14 died and 29 were not heard from. Other drugs used included red mercuric iodide injection, bismuth salicylate, merbaphen and theophylline-ethylenediamine, but no definite conclusions can be drawn on account of the number of cases unheard from. We feel that the most favorable grouping has not yet been found. The indications seem to be for the most part, for cardiac treatment, rest first, then careful antisyphilitic treatment. Large doses of powerful drugs are not well tolerated. Vasodilators and diuretics, especially merbaphen, mersalyl and the mercury diuretics, are the most promising.

DISCUSSION

DR. W. W. HAMBURGER, Chicago: I should like to ask Dr. Herrmann whether he found that treatment with ouabain gave very different results from large doses of digitalis.

DR. H. E. B. PARDEE, New York: The series would be much more valuable if it should be continued. It is incomplete at present. I think that the later condition of the patients should be known, and the effect of digitalis, whether it helps the cardiac insufficiency. It may not prolong life. The factor of control is important.

DR. C. N. HENSEL, St. Paul: I should like to carry away a definite impression as to the value of a type of treatment in a given case. The various speakers have drawn material from different sources, hospitals, dispensaries and private practice. Prognosis is influenced by the type of treatment, by the type of lesion, by the type of patient, and also by how he handles himself. Dr. Herrmann cites cases treated for ten days or two weeks. Dr. Danglade used mercury for three months at a time up to sixty-five months. My own experience is not near these figures. My patients are drawn from hospitals and from private practice. I give mercury for three months with rest in bed and then given arsphenamine in small doses, from 0.05 to 0.15 Gm. I never go beyond 0.3 Gm. I have ten patients still alive from six to ten years after treatment. I would emphasize this type of treatment, cautiously followed.

DR. ALEXANDER LAMBERT, New York: I do not take as cheerful a view as Dr. Pardee. The syphilitic heart is apt to go to pieces on large doses of digitalis more quickly than on anything else. The patient with a negative Wassermann reaction, without aneurysm, without aortic lesions, should not have antisyphilitic treatment.

DR. HAVEN EMERSON, New York: One of the hazards of having a symposium of this kind is the fact that it forces the speakers into premature publicity. The probable error of most of the statistics presented here is so high that it would not be accepted in any bureau of statistical data. In the classifications you are presenting the presumed error is higher than the presumed accuracy. There are three points which must be remembered in any compilation of statistics: (1) comparability; (2) objectivity and (3) reliability. When you talk about forty-four cases and work out the theoretical percentages of the fractions you are still in the prenatal stage of statistical expression. If one deals in anything less than thousands one does not approach figures valuable for clinical work. Statistics give the trend; the individual answers the questions. When one can give plus or minus results that run into thousands, the figures will have an honest value for physiologists, chemists or public health officers. A health officer who did not deal with figures in this way would lose his job.

DR. ROBERTS, New York: As a clinician, not a statistician, I do not think the impression should go out that we should be discouraged from drawing conclusions. We should be open minded. Statistics show trends, but the sum total of little things makes up the large amounts. Do not let us be optimistic or too pessimistic, but we need not wait for thousands.

DR. ALEXANDER LAMBERT, New York: Differences of opinion are necessary for a proper discussion of a subject, and they make good medical meetings.

DR. G. R. HERRMANN, New Orleans: As to the relative usefulness of ouabain contrasted with large doses of digitalis, the results were more striking with ouabain; but it was used for patients who were practically at the point of death. It may be more useful to save life as a temporary expedient.

Current Medical Literature

AMERICAN

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Titles marked with an asterisk (*) are abstracted below.

American Journal of Ophthalmology, Chicago

13: 573-666 (July) 1930

Lipemia Retinalis. W. R. Parker and A. M. Culler, Detroit.—p. 573.
Adenocarcinoma of Lacrimal Gland. W. L. Benedict and A. C. Broders, Rochester, Minn.—p. 585.
Electric Cataract. T. B. Holloway, Philadelphia.—p. 595.
Frequency of Sympathetic Ophthalmia. G. D. Theobald, Oak Park, Ill. —p. 597.
Optic Neuritis Secondary to Postnasal Sinus Disease. G. H. Poos, St. Louis.—p. 605.
Etiology of Lacrimal Disorders. J. I. Kemler, Baltimore.—p. 610.
Pepy's Eye Complaint. Hans Barkan, San Francisco.—p. 613.

Archives of Dermatology & Syphilology, Chicago

22: 1-200 (July) 1930

Trichophyton Purpureum (Bang) as Deep Invader of Skin: Case. J. H. Harris and G. M. Lewis, New York.—p. 1.
Significance of Mycology in Tropical Medicine. B. K. Ashford, San Juan, Porto Rico.—p. 7.
Growth of Hair in Newly Born Albino Rats. J. F. Schamberg and E. Saleeby, Philadelphia.—p. 34.
Epidermophytosis of Feet and Epidermophytids of Hands. S. M. Peck, New York.—p. 40.
Treatment of Lupus Erythematosus by Intravenous Injections of Gold Chloride. H. Haxthausen, Copenhagen, Denmark.—p. 77.
*Use of Solution of Pituitary in Herpes Zoster. D. M. Sidlick, Philadelphia.—p. 91.
Finding of Larvae of Chigo, Tunga Penetrans, in Scrapings from Human Skin: Case. E. C. Faust and T. A. Maxwell, New Orleans.—p. 94.
Nature of Melanoma: Cured Case. O. L. Levin and S. H. Silvers, New York.—p. 98.
*Leprosy: Treatment by Means of Special Vaccine. A. W. Williams, Parkstone, Dorset, England.—p. 109.
Émile Vidal. B. B. Beeson, Chicago.—p. 115.

Use of Solution of Pituitary in Herpes Zoster.—The commercial preparations used for obstetric cases were administered intramuscularly by Sidlick in dosages varying from 0.5 to 1 cc. The dose, number of treatments and frequency with which the treatment was repeated were governed by the intensity of the pain from which the patient suffered. In most instances the number of treatments required to obtain absolute relief from pain were two, given a day apart. In cases in which the condition consisted of comparatively few zoster patches and the pain was mild, the patient was clinically cured by one treatment. However, there were a number of patients who required three treatments, and one was given six injections. Fifty-four patients have been treated by this method. The duration of their disease was anywhere from twenty-four hours to five weeks. Four patients suffered agonizing pain. Pregnancy is the only contraindication to the treatment. The use of this solution was not found to be unsafe for patients with hypertension or for those of advanced age. The only untoward effect observed was a momentary sensation of faintness experienced by some of the patients.

Treatment of Leprosy by Means of Special Vaccine.—Williams reports two cases in which treatment consisted in the subcutaneous injection of an emulsion of a desiccated nodule. The patients responded to the vaccine after a failure to respond to other treatments.

Illinois Medical Journal, Oak Park

57: 365-436 (June) 1930

Forward Look into Medical Practice. F. O. Fredrickson, Chicago.—p. 377.
Economics. L. P. Kuhn, Chicago.—p. 381.
Administrative Control of Communicable Disease. D. M. Griswold, Lansing, Mich.—p. 389.
Clinical Significance of Intestinal Fermentation. L. D. Snorf, Chicago. —p. 397.
Thyroid-Hypertrophy-Subnutrition Syndrome. I. Bram, Philadelphia. —p. 400.
Clinical Training of Graduate Student in Ophthalmology. T. D. Allen, Chicago.—p. 404.
Intravenous Anesthesia with Sodium Amytal. F. E. Bollaert, Moline. —p. 407.
New Operation for Recurrent Dislocation of Shoulder: Use of Fascia Lata Strip. E. B. Fowler, Chicago.—p. 410.
Scurvy: Case. I. P. Bronstein, Chicago.—p. 411.
Unusual Clinical Experiences in Maxillary Sinusitis: Three Cases. C. H. Long, Chicago.—p. 413.
Woman's Bill of Rights. E. G. C. Williams, Danville.—p. 415.
Rectal Operations: Their Systemic Effects. P. F. James, Peoria.—p. 418.
Ectopic Pregnancy. E. D. Allen, Chicago.—p. 420.
Certain Factors Influencing Mental Health of College Students. J. H. Beard, Urbana.—p. 423.
Five Most Common Errors in Obstetric Practice. G. K. Sims, Chicago. —p. 427.

Iowa State Medical Society Journal, Des Moines

20: 235-282 (June) 1930

Allergy as Recounted by General Practitioner. W. W. Duke, Kansas City, Mo.—p. 240.
Osteomyelitis of Spine. A. Steindler, Iowa City.—p. 246.
Symptoms of Some Rectal Conditions and Treatment by Ambulatory Methods. G. B. Anderson, Ackley.—p. 249.
Training of Health Officers and Public Health Nurses. M. E. Barnes, Iowa City.—p. 254.
Peripheral Nerve Injuries. W. D. Abbott, Des Moines.—p. 257.
Sporotrichosis: Case. J. B. Kessler and J. C. Kessler, Iowa City.—p. 259.
Branchial Apparatus. O. R. Hyndman and G. Light, Iowa City.—p. 260.

Johns Hopkins Hospital Bulletin, Baltimore

46: 341-393 (June) 1930

Enzyme Problem and Biologic Oxidations. O. Warburg, Berlin-Dahlem. —p. 341.
Circulatory Failure of Diphtheria: III. Treatment of Circulatory Failure of Diphtheria. F. F. Schwentker and W. W. Noel, Baltimore. —p. 359.
Effect of Repeated Intravascular Injections of Heparin. W. H. Howell and C. H. McDonald, Baltimore.—p. 365.
*Recurrent Agranulocytosis. B. H. Rutledge, O. C. Hansen-Prüss and W. S. Thayer, Baltimore.—p. 369.

Recurrent Agranulocytosis.—Rutledge et al. report an instance of cyclic, agranulocytic angina associated with fever and constitutional symptoms but without anemia, beginning at the age of 2½ months and recurring at intervals of approximately three weeks during the entire life of a man 20 years of age. While apparently unique in medical literature, the picture is so sharply defined and clear that they are inclined to think that it represents a definite complex of symptoms which may be less infrequent than one might fancy at the moment.

Journal of Allergy, St. Louis

1: 307-384 (May) 1930

*Sand Fly (Caddis Fly) as Exciting Cause of Allergic Coryza and Asthma: II. Relative Frequency. S. J. Parlato, Buffalo, N. Y.—p. 307.
Review of Hay-Fever Literature of 1929. S. M. Feinberg, Chicago. —p. 313.
Sudden Allergic Reactions in Maxillary Sinus. A. W. Proetz, St. Louis. —p. 324.
Allergy: I. Specific Activity of Pollen Oil. E. L. Milford, New York. —p. 331.
Pollen Content of Air. H. K. Detweiler and H. Hurst, Toronto, Canada. —p. 334.
Boxwood Sensitiveness. L. E. Markin, Chicago.—p. 346.
Food Allergy and Nasal Symptoms. C. H. Eyermann, St. Louis.—p. 350.
*Sympathetic Component of Extrinsic Nerve Innervation of Lungs in Status Asthmaticus. E. L. Stern and C. A. Spivacke, New York. —p. 357.
Survey of Herbaceous Plants in New Orleans in Relation to Allergy. W. T. Penfound, B. G. Efron and J. J. Morrison, New Orleans.—p. 369.

Sand Fly as Exciting Cause of Allergic Coryza and Asthma.—Routine skin and eye tests made by Parlato with the whole sand fly extract in 192 cases of allergy revealed fourteen patients with positive reactions. The four positive cases in which the passive transfer test was done elicited the presence of sand fly reagin in the blood serum. He concludes that the comparative frequency of sand fly hypersensitiveness warrants its use as a routine test in all patients with allergic conditions, particularly those patients living near lakes, rivers and ponds. The emanations of the sand fly consisted of minute hairs and scaly epithelium which are readily thrown into the air from the wings, body and limbs of the fly during its brief

span of adult life. They are so common and so numerous along the shores of Lake Erie and the Niagara River as to cover the ground. Many times, as one motors along the lake shore, it is necessary to operate the windshield cleaner in order to maintain a clear vision while driving through swarms of the flies. They are first seen early in June and disappear about the second or third week in September.

Sympathetic Component of Extrinsic Nerve Innervation of Lungs in Status Asthmaticus.—Stern and Spivacke noted that, in a patient with bronchial asthma, stimulation of the sympathetic trunk between the level of the second and fourth intercostal spaces on the right side, by an electric current, induced an attack of asthmatic breathing. On blocking this region with alcohol, the attack cleared up completely and almost immediately. Stimulation between the stellate ganglion and the level of the third intercostal space, after blocking of the levels at the second and fourth spaces, did not produce an attack of asthma. Several hours after the blocking on the right side, the patient was found to have a left unilateral asthma. Stimulation of the right sympathetic trunk from the level of the second to the fourth spaces caused dilatation of the right pupil. Blocking of the right sympathetic trunk by injections of alcohol, from the stellate ganglion to the region of the fourth thoracic ganglion, produced a Horner's syndrome of the right eye. Blocking of the right sympathetic from the stellate ganglion to the region of the fourth thoracic ganglion, by means of alcohol injections, relieved a case of status asthmaticus for one month; i. e., the patient, who had constant, repeated attacks of asthma, day and night, for about three weeks previous to the injections, had virtually no asthmatic attacks of any severity, and the lungs were clear for almost an entire month after the injections.

Journal of Industrial Hygiene, Baltimore

12: 169-222 (May) 1930

Occupational Cancers. Imre Heller.—p. 169.
Occurrence of Pulmonary Fibrosis and Other Pulmonary Affections in Asbestos Workers. E. R. A. Merewether.—p. 198.

Medical Journal & Record, New York

132: 1-52 (July 2) 1930

Intravenous Urography. A. L. Wolbarst and I. S. Hirsch, New York.—p. 1.
Electrocardiographic Examination During Attacks of Syncope. L. F. Bishop, L. F. Bishop, Jr., and L. H. Wheeler, New York.—p. 7.
Aneurysm of Anterior Cerebral Artery: Case. R. L. Hamilton, Sayre, Pa.—p. 8.
Chronic Myelogenous Leukemia: Case. A. E. Oliensis, Philadelphia.—p. 11.
Diabetes: Pathogenesis, Scientific and Rational Treatment. W. H. Porter, New York.—p. 13.
Clinical Interpretation of Rheumatic Fever. H. A. Callis, Tuskegee, Ala.—p. 16.
Diagnosis of Gynecologic Diseases: Grouping and Treatment. R. T. Frank, New York.—p. 19.
Acute Surgical Conditions in Abdomen in Gynecology. Bernard Mann, Philadelphia.—p. 26.
Modern Advances in Practice of Gynecology. Edward Hoenig, New York.—p. 28.
Persistent Menstruation After Hysterectomy and Bilateral Oophorectomy. D. Deutschman, New York.—p. 30.
Continuation of Pregnancy for 124 Days After Rupture of Membranes in Twentieth Week. M. P. Rucker, Richmond, Va.—p. 32.
Normal Heart in Pregnancy. Edward Podolsky, New York.—p. 33.
Therapeutic Use of Acetylcholine. Maurice Villaret and L. Justin-Besançon, Paris, France.—p. 35.
Hippocrates and Hiccup. W. R. Riddell, Toronto.—p. 40.

New Orleans Medical & Surgical Journal

83: 1-60 (July) 1930

Medical Progress. F. T. Gouaux, Lockport, La.—p. 1.
Medical Profession and Public. W. C. Rappleye, New Haven, Conn.—p. 6.
Preoperative Preparation. U. Maes, New Orleans.—p. 14.
Conservative Management of Hydronephrosis. H. W. E. Walther, New Orleans.—p. 18.
Right Sided Abdominal Pain and Incidence of Kidney and Ureteral Stone. A. G. Payne, Greenville, Miss.—p. 20.
Retrograde Method of Dilating Cicatricial Stenosis of Esophagus. H. L. Kearney, New Orleans.—p. 23.
*Simple Blood Smear Agglutination Tests in Tularemia, Typhus and Undulant Fever. S. J. Lewis, New Orleans.—p. 26.
Chronic Appendix from Roentgenologic Standpoint. A. Henriques, New Orleans.—p. 29.
Common Cold: Etiology and Treatment. D. W. Hamrick, Corinth, Miss.—p. 33.
Acute Inverson of Uterus. L. B. Otken, Greenwood, Miss.—p. 37.
Eclampsia with Sixty-One per Cent Albumin: Case. L. Levy, New Orleans.—p. 39.

Simple Blood Smear Agglutination Tests in Tularemia, Typhus and Undulant Fever.—In the method used by Lewis, a heavy suspension of killed organisms is placed in contact with a blood smear or a drop of blood on a slide. Accordingly, the materials required are a drop of blood or serum or an ordinary blood smear on a slide, a drop of water, a tooth-pick, and a drop of the suspension concerned. A positive result was shown by the formation of clumps, which were easily visible to the naked eye, or a negative one by no change. Specimens of nine cases of tularemia, four of typhus and four of undulant fever were examined. The blood smear technic was satisfactory in these cases. The reaction was negative in fifty normal bloods. The results compare favorably with more elaborate and exact methods.

Ohio State Medical Journal, Columbus

26: 569-648 (July 1) 1930

Impending Developments in Diagnosis and Treatment of Cancer. F. C. Wood, New York.—p. 589.
Evaluation of Electrocardiography. F. C. Clifford, Toledo.—p. 594.
Roentgen Ray and Radium in Treatment of Uterine Fibromyoma and Benign Menorrhagia. M. A. Thomas, Cleveland.—p. 599.
Physiology and Surgery of Biliary Tract. R. R. Kahle, Columbus.—p. 602.
*Institutional Physiotherapy as Adjunct in Treatment of Hypertension. R. M. Watkins, Cleveland.—p. 604.
*Infectious Mononucleosis. R. W. Bradshaw, Oberlin.—p. 607.

Institutional Physical Therapy as Adjunct in Treatment of Hypertension.—Experience with seventeen cases has convinced Watkins of the value of physical therapy in the treatment of hypertension. The secondary type, due to arteriosclerosis with or without reduced kidney efficiency, responds poorly, possibly temporarily, to physical therapy, as it does to the older measures of treatment. It is the primary or essential type that responds best. The majority of patients have been treated by means of the electrical cabinet bath for the promotion of skin elimination. Massage and hydrotherapy in connection with the foregoing have been used frequently. Diathermy has been employed in the treatment of a few patients.

Infectious Mononucleosis.—The case reported by Bradshaw is exceptional in that a leukopenia and mononucleosis have persisted for six weeks after recovery.

Southwestern Medicine, Phoenix, Ariz.

14: 257-308 (June) 1930

Nature of Symptoms. F. M. Pottenger, Monrovia, Calif.—p. 257.
Diagnosis of Tuberculosis in Children. R. B. Homan, El Paso, Texas.—p. 266.
Esophageal Diverticula. C. T. Sturgeon, Los Angeles.—p. 268.
Treatment of Food Sensitization with Digestants and Citric Acid. O. H. Brown, Phoenix, Ariz.—p. 274.
Review of Head Injuries Observed in City County Hospital of El Paso, During Years 1926 to 1929, Inclusive. Dr. Guynes and John Hardy, El Paso, Texas.—p. 277.
Paralysis Probably Due to Jamaica Ginger: Case. J. J. Gorman, El Paso, Texas.—p. 279.
Three Tumors of Neck. W. L. Brown and C. P. Brown, El Paso, Texas.—p. 279.
Compound Comminuted Fracture Both Bones of Left Leg: Case. C. N. Ploussard, Phoenix, Ariz.—p. 280.

Tennessee State M. Assn. Journal, Nashville

23: 193-232 (June) 1930

Surgery of Uterine and Ovarian Tumors. C. J. Miller, New Orleans.—p. 201.
Outstanding Achievements in Obstetric Practice in Past Hundred Years. J. O. Polak, New York.—p. 207.
Poliomyelitis. O. W. Hill and J. T. Smith, Knoxville.—p. 213.

West Virginia Medical Journal, Charleston

26: 385-448 (July) 1930

Epidemic Meningitis. G. M. Lyon, Huntington.—p. 385.
Clinical Interpretation of Basal Metabolism Studies. J. H. Smith, Richmond.—p. 396.
Factors Influencing Mortality Rate in Acute Appendicitis. B. Banks, Charleston.—p. 403.
Recent Work on Cancer Problem. J. C. Bloodgood, Baltimore.—p. 410.
Transvesical Repair of Vesicovaginal Fistulas: Case. G. G. Irwin, Charleston.—p. 419.
Postdiphtheritic Paralysis. F. S. Harkleroad, Harvey.—p. 421.
Old Order Changeth. A. H. Hoge, Bluefield.—p. 422.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Glasgow Medical Journal

32: 281-332 (June) 1930

*Healed Tuberculoma of Brain: Case. J. E. Paterson and W. D. H. Stevenson.—p. 281.
Psychotherapy in Alcoholism. D. Yellowlees.—p. 291.
Palliative Treatment for Oral Administration in Cases of Inoperable Malignant Disease. D. P. Leiper.—p. 294.
Accidental Inoculation with Bacillus Tuberculosis in Child. J. Buchanan and J. N. Cruickshank.—p. 296.

Healed Tuberculoma of Brain.—Paterson and Stevenson relate the case of a boy, aged 16, who since the age of 2 years had suffered from occasional attacks of "convulsions." When 13 he began to have attacks of mental disorder, characterized by gross delusions. These bouts of mental disorder continued till he was 15, when he was admitted to an asylum. After a stay there of five months he was dismissed, and his improvement was such that he was able to resume his work as a wire winder. A year later he again suffered from severe mental disturbance. The roentgenogram showed an area in the right parieto-occipital region of the cerebral cortex in which was a dense mass roughly spherical and reaching approximately to the cortical surface. The condition was regarded as one of calcified tumor of the cerebrum, probably a glioma. The tumor was removed. He became conscious three hours after the operation and remained so till thirty-six hours later, when a progressive drowsiness set in and it was observed that there was some paresis of his contralateral arm and leg, and that his right pupil was dilated. His pulse slowed gradually, and finally reached 64 per minute. It was obvious that he was suffering from cerebral compression due to a postoperative hemorrhage and that his wound would require reopening. When this was done, forty-eight hours after operation, a large extradural clot, about 1½ inches (4 cm.) thick in its central part, was found. It was removed and the wound closed again with care, and thereafter recovery went on normally. The tumor presented the appearance of an obsolete, partially calcified tuberculoma.

Journal of Tropical M. & Hygiene, London

33: 165-184 (June 16) 1930

*Fungal Diseases of Tonsils (Tonsillomycoses). A. Castellani.—p. 165.

Fungal Diseases of Tonsils (Tonsillomycoses).—Castellani says that diseases of the tonsils due to fungi are not rare, though so far scant attention has been paid to them. They may be classified in various ways. Castellani presents a clinical classification as probably the most useful for practitioners. According to this classification tonsillomycoses are separated into two groups, acute and chronic. Of the acute tonsillomycoses the principal types are tonsillomycosis follicularis and tonsillomycosis membranacea (tonsillomycosis diphtheriasimilis). Cases of the latter type may closely resemble diphtheria. Of the chronic and subacute tonsillomycoses the principal types are tonsilloactinomycosis, tonsillopseudoactinomycosis, tonsillomycosis fusca and tonsillomycosis spiculata vel spinulosa.

Bull. et Mém. de la Soc. Méd. des Hôpitaux de Paris

(54): 687-745 (April 28) 1930

Psittacosis: Case. P. Pagniez and A. Plichet.—p. 688.
Idem. N. Fiessinger and P. Decourt.—p. 689.
Cholecystitis: Bile Salt Content of Bile. M. Chiray and A. Marcotte.—p. 696.
*Cancer of Suprarenals. F. Trémolières, A. Tardieu, A. Carteaud and E. Normand.—p. 710.
*Hemiplegia Following Profuse Hematemesis. P. Abrami and R. Worms.—p. 718.
*Death During an Attack of Asthma. Pasteur Vallery-Radot and G. Mauric.—p. 732.
*Pneumopathy with Spirochetes in Sputum. G. Albot and L. Michaux.—p. 738.
*Epilepsy: Calcium Contents of Blood and Cerebrospinal Fluid. C. I. Parhon and J. Ornstein.—p. 742.

Cancer of Suprarenals.—According to Trémolières et al., cancer of the suprarenals may be divided clinically into four groups, thus: (1) tumors that are accompanied by an endocrine syndrome such as acute suprarenal insufficiency or suprarenal virilism; (2) tumors that produce an evident abdominal mass accompanied by variable signs of compression; (3) tumors that are accompanied by a paroxysmal or continuous hypertension, and (4) tumors that are masked by the signs of multiple metastases, which have originated from them. They report a case of cancer in a man, aged 51. Despite the fact that the only endocrine symptom noted was a marked adynamia not accompanied by tumor or arterial hypertension, multiple metastasis had occurred; although the metastases had developed with great rapidity, they were accompanied only by the usual signs of septicemia. The authors believe that the fever was caused by the dissemination of the neoplasm and by the tissue disintegration, both of which had been intense in their case.

Hemiplegia Following Profuse Hematemesis.—Abrami and Worms report a case in which a man, aged 55, with arteriosclerosis, had an attack of profuse hematemesis. He was brought to a hospital and examination revealed the presence of a left-sided femoral paralysis with Babinski's sign. The next day passed without incident but on the following day the hematemesis reappeared. Shortly afterward the paralysis became complete, extending to the arm and the face to attain the common type of hemiplegia caused by a lesion of the middle cerebral artery. A blood transfusion arrested the hematemesis; the next day the paralysis of the face and arm was retrogressing. Six weeks passed but the nervous symptoms did not change; the leg remained completely paralyzed. In the course of the seventh week a second blood transfusion was performed and was followed after several hours by a reappearance of movements in the paralyzed extremity, which in less than two days had recovered its voluntary motility almost completely.

Death During an Attack of Asthma.—Pasteur Vallery-Radot and Mauric report an instance of death during an attack of asthma in a woman, aged 40. After a long period of spasmodic coryza, attacks of bronchial asthma had appeared during the winter of 1927-1928. At first they were separated by long remissions but during the month of May, 1928, the attacks followed one another at short intervals. During the second half of the year 1929 the attacks diminished in intensity and frequency. At the time of admission to the hospital, Sept. 28, 1929, the attacks were not particularly violent, the general condition was not disquieting, and the clinical examination did not reveal an important pulmonary or cardiac lesion. Nevertheless the patient died three days later, after an attack that lasted twenty-six hours and in which it was impossible to ameliorate the dyspnea by any form of treatment.

Pneumopathy with Spirochetes in Sputum.—Albot and Michaux report a case of pneumopathy with spirochetes in the serum in which seven injections of neoarsphenamine were without effect. The authors therefore tried injections of emetine. The condition of the patient began to improve almost at once and in less than six weeks he left the hospital completely cured.

Epilepsy: Calcium Contents of Blood and Cerebrospinal Fluid.—Parhon and Ornstein determined the calcium content of the blood of 35 epileptic patients ranging in age from 18 to 44 years. In 19 male patients they found a diminution in the normal amount, which varies from 10 to 12 mg., 4 times and an amount at the lower normal limit 4 times. In 16 female patients they found a diminution 4 times and an amount at the lower normal limit 3 times; in only 1 instance did they find an amount at the upper normal limit. In 38 epileptic patients they determined the calcium content of the cerebrospinal fluid, which normally varies between 0.046 and 0.057 Gm. per thousand cubic centimeters. In 11 of 26 patients in whom the cerebrospinal fluid was examined between attacks, amounts lower than 0.046 were found, and in 3 patients the amount was lower than 0.040; in only 1 instance did the amount exceed the upper normal limit of 0.057. In 5 of 12 patients examined during an attack, the calcium content of the cerebrospinal fluid was below 0.046.

Presse Médicale, Paris

38: 665-688 (May 17) 1930

Capillaroscopic Changes and Vascular Disturbances in Various Nervous and Endocrine Diseases. G. Marinesco and A. Bruch.—p. 665.
*Remarkable Action of Magnesium Hyposulphite in Conditions of Shock. G. Boissel.—p. 670.
Various Forms of Syphilis of Central Nervous System: Therapeutic Test for Differentiation. R. Targowla.—p. 672.
*Exophthalmic Goiter: Treatment. A. Pinto and E. Coelho.—p. 673.

Remarkable Action of Magnesium Hyposulphite in Conditions of Shock.—Boissel's study is based on a total of fifty patients. Some of them enter perfectly the group of fully developed anaphylaxis. Most of them, however, presented manifestations which, although it was impossible to determine the sensitizing antigen and the mode of penetration of the substance inducing the shock, come under the group of anaphylactic phenomena. He observed twelve patients with asthma that had resisted prescribed regimens, the dermal vaccine of Duquaire and Bonnamour, various attempts at desensitization and thermal cures. Under magnesium hyposulphite treatment the condition of the patients showed marked improvement. Two types of action were noted: 1. The immediate effect of the injection on an attack of dyspnea was as rapid as the effect of an injection of epinephrine. In ten minutes the condition of the patient was frequently transformed completely. 2. The preventive action also was marked. Following an injection of 10 cc. of a 10 per cent solution every four days, and frequently following the ingestion of from 2 to 3 Gm. every twenty-four hours for several weeks, the attacks became progressively less frequent and did not reappear until several months later. Although the action of the salt was remarkable in most cases, the author observed four patients in whom the condition was completely refractory. In a case of epilepsy in a young man who had been treated without success by means of sedatives, a regimen, decongestive drugs, endocrine preparations and so on, the attacks, which had occurred at the rate of three or four a month, were completely suppressed by injections of 10 cc. of a 10 per cent solution during the prodromal stage of the attacks. During this stage the symptoms were sufficiently marked to permit the members of the family to tell that an attack was imminent. Under treatment with magnesium hyposulphite the attacks have been completely suppressed for two months. A beneficial action was also noted in a case of congelation urticaria, a case of chronic eczema, a case of purpura, and a case of persistent vomiting of pregnancy.

Exophthalmic Goiter: Treatment.—Pinto and Coelho state that the beneficial effects of iodine therapy in exophthalmic goiter are probably the result of an irritation producing an edema of the gland, which prevents diffusion of the thyroxin. After a time the circulatory difficulties disappear and, consequently, the thyroxin again passes freely into the blood stream and the phenomena of intoxication reappear. A study of thyroids from persons who have undergone iodine treatment shows an absence of the hyperplastic zones with a considerable augmentation of the colloid substance; the alveoli are as well and even more developed than normal. This transformation is of great importance with regard to surgical intervention because the gland becomes much less friable and bleeds less when incised.

Giornale di Clinica Medica, Parma

11: 379-464 (April 30) 1930

*Diabetes Insipidus. L. V. Blina.—p. 379.
Cultivation of Tubercle Bacilli: Observations on Morphology and Morphogenesis of Tubercle Bacilli. A. Terzani.—p. 400.
Hygienic Organization of Italian Islands of Aegean Sea. C. G. Gasperini.—p. 411.

Diabetes Insipidus.—Blina reviews the various theories in regard to diabetes insipidus and reports two clinical cases, one of which belonged in Veil's first class while the other presented characteristics partly of the hypochloric hyperchloremic type and partly of the hyperchloric hypochloremic type but inclined frankly toward the first type as a result of hypophyseal treatment. The observations in these two cases lead to the assumption of combined types and of changes in a given case from manifestations of one type to those of another type. The author is of the opinion that the criteria of classification in diabetes insipidus cannot be based on the concentration capacity of the kidney or on the amount of sodium chloride in the blood and urine. The changes in the intensity of the disturbances and the transition in the same individual from one type to another justify the belief that some part of the pathogenic mechanism of diabetes insipidus is of a variable nature and that the discrepancy between the regulation of diuresis by water and by molar diuresis represents the primary stable fact, in addition to which there must be some other secondary labile factor.

Pediatria, Naples

38: 473-528 (May 1) 1930

Autochthonous Furunculus Orientalis in Campobasso, Italy: Case in Child. L. Auricchio.—p. 473.
*Effects of Insulin on Protein Metabolism in Pulmonary Tuberculosis in Children. E. M. Mondini.—p. 483.
Froin's Syndrome in Acute Infectious Spinal Meningitis in Infant. G. Marcelli.—p. 501.
Paralysis of Velum Palatinum and Laryngopharyngeal Paralysis in Scarlet Fever. A. Berardi.—p. 506.

Effects of Insulin on Protein Metabolism in Pulmonary Tuberculosis in Children.—Mondini studied the effects of insulin treatment on the protein metabolism of four children in the third stage of progressive pulmonary tuberculosis of the moderate febrile type. The protein metabolism was observed before and during the treatment. Half the daily dose of insulin was given twice a day, one-half hour before meals, in order to avoid the hunger that is associated with the hypoglycemic period of insulin treatment. In all the cases the temperature, which before the treatment had been low, increased with the first injection of insulin and continued high during the entire treatment. This elevation represents a protein reaction. In one case the first injection of insulin caused an intense focal reaction. Insulin had an unfavorable effect on the protein metabolism of the patients. The loss of nitrogen was greater during the treatment than it was before it. The author considers that the increased consumption of proteins during insulin treatment is caused by the fever and by a direct action of insulin on the protein metabolism.

Policlinico, Rome

37: 213-252 (May 1) 1930. Medical Section

*Purulent Meningitis Due to Pseudomeningococci in Child with Congenital Syphilis: Case. P. Fornara.—p. 213.
Landry's Paralysis of Polyneuritic Type, in Syphilitic Patient. V. Cantalamessa.—p. 223.
Hemohistoblastosis with Peculiar Clinical and Hematologic Characteristics: Case. R. Gosio.—p. 233.

Purulent Meningitis Due to Pseudomeningococci in a Child with Congenital Syphilis.—Fornara reports a case of purulent meningitis of most acute onset and the presence of pseudomeningococci in a girl, aged 4, with a prolonged course of more than two months, in which the serologic examinations showed the existence of congenital syphilis and in which antisyphilitic treatment contributed notably to the child's recovery. He discusses also the question of the clinical and serologic behavior of persons with congenital syphilis in the presence of intercurrent diseases, citing the cases of purulent meningitis in association with congenital syphilis, published in the literature, and discussing the problem of specific and aspecific Wassermann tests applied to the cerebrospinal fluid.

37: 653-688 (May 5) 1930. Practical Section

*Retention of Sodium Chloride in Pneumonia. G. Sabatini.—p. 653.
Creation of a Fistula Leading into Intestine in Treatment of Recurrent Biliary Fistulas. U. Bani.—p. 659.
Crusade Against Anopheles Mosquitoes in Istria. M. Gioseffi.—p. 661.

Retention of Sodium Chloride in Pneumonia: Treatment of Toxic Symptoms by Injections of Physiologic Solution of Sodium Chloride.—Sabatini inquires into the nature of retention of chlorides in pneumonia and then explains the ideas held on the function of sodium chloride, considered from the physicochemical point of view, in the causation of phenomena of antitoxic neutralization, and perhaps of true immunity during the course of pneumonia and of other infectious diseases with prevailing toxic manifestations. The author

reports also the remarkable clinical and therapeutic results attainable in the treatment of pneumonia and of other infective and toxic diseases by means of repeated small injections of physiologic solution of sodium chloride.

Medizinische Klinik, Berlin

26: 687-724 (May 9) 1930

Pathogenesis and Treatment of Eclampsia. O. von Franqué.—p. 687.
Water Metabolism and Diuresis. F. Reiche.—p. 691.
Clinical Significance of Heart Hormone and Investigations on "Reserve Power of Heart." G. Zuelzer.—p. 695.
Hypernephroma with Formation of Cyst. G. Lepehne.—p. 698.
*Combined Radium and Roentgen Irradiation in Cancer of Cervix Uteri. O. Nebesky.—p. 699.
*Abortive Form of Still's Disease and Scleroderma. H. Steinitz and A. Casper-Fürstenheim.—p. 700.
Epidemiology and Prophylaxis of Typhoid. G. Salus.—p. 703.

Radium and Roentgen Irradiation in Cancer of Cervix Uteri.—Nebesky employed a combined radium and roentgen treatment in 121 cases during the last three years. Radium is applied in the first treatment. Two or three days later this is followed by roentgen treatment. The roentgen rays are applied through a filter of 0.5 mm. of zinc and 1 mm. of aluminum. This radium irradiation is repeated from three to five weeks later and after three months the patients are given another roentgen treatment. In estimating the results of the treatment the author points out that the number of cases is limited and that the time that has elapsed is not long enough to show whether the results will be permanent. He tabulates the 121 cases according to their severity and gives the results that were obtained with the combined radium and roentgen therapy. The results are not exceptionally favorable but they are somewhat better than with surgical therapy. This radiation treatment also has the advantage of eliminating the primary mortality and not frightening the patients to the same extent as an operation; thus it encourages the patients to seek treatment earlier.

Abortive Form of Still's Disease and Scleroderma.—Steinitz and Casper-Fürstenheim report the clinical history and the results of the necropsy of a case of an abortive form of Still's disease. In a man, aged 31, who had had several gonorrheal infections, there developed a disease that lasted several months. The main symptoms were an increasing stiffening of the joints, especially of the hands and feet, and extensive scleroderma. The temperature was slightly increased. The necropsy revealed, besides marked enlargement of the laryngeal lymph nodes, a slight enlargement of the spleen and adhesive pericarditis and pleuritis. Noteworthy also were the acute nephrosis that developed shortly before the patient died, and atheromatosis of the coronary vessels and of the aorta. The main symptoms in this case indicate Still's disease, even if the disorders of the lymphatic apparatus, namely, of the spleen and lymph nodes, are not so pronounced as is otherwise characteristic for this disease.

Zeitschrift für Krebsforschung, Berlin

31: 217-360 (May 14) 1930

*Precancerous Changes in Human Esophagus. H. Schaer.—p. 217.
Melanocytoblastoma of Liver. M. Brandt.—p. 254.
*Cancer of Stomach: Five Hundred Cases. T. Poscharissky.—p. 263.
Primary Cancer of Bronchi. C. Kühn.—p. 276.
Morphology of Lipoid Deposits in Organism of Tar Mice. K. Wolkoff.—p. 291.
Course of Tumor Formation in White Mice Under Influence of Light of Various Colors. G. Schorr and N. Ssobolewa.—p. 308.
Multiple Localized Primary Carcinomas: Frequency. R. F. Müller.—p. 339.

Precancerous Changes in Human Esophagus.—Schaer examined 237 esophaguses, most of which were from men more than 40 years of age, for precancerous changes. He found leukoplakia in 67 per cent of all the cases and states that, although at a certain age it occurs in various degrees of development much more frequently than does leukoplakia of the mouth, it is much less frequently followed by cancer. It occurs more frequently in men than in women. In nearly two thirds of the cases, chronic esophagitis was found; but a parallel between the frequency of this condition and the frequency of marked epithelial proliferation could not be demonstrated. In two cases of idiopathic dilatation of the esophagus, one of which was associated with cancer, intense esophagitis was present. In twelve of the esophaguses, seventeen traction diverticula were found. This condition occurs much more frequently in men than in women and is frequently accompanied by epithelial proliferations that may later develop into cancer. The author found similar proliferations at the entrance to one epiphrenic pulsion diverticulum and in two traction diverticula and believes that they play an important part in the development of cancer of the esophagus.

Cancer of Stomach: Five Hundred Cases.—In an examination of 16,000 necropsy reports, Poscharissky found 500 instances (3.14 per cent) of primary cancer of the stomach. From a study of these cases he concludes that the degree of dissemination in cancer of the stomach depends on the age of the patient, the microscopic structure of the cancer and its localization in the stomach. Thus the proportion of cases of cancer of the pylorus accompanied by metastases was 69.2 per cent, of the cardia 77.8 per cent, of the fundus 83.4 per cent, of the antrum pylori 87 per cent, of the lesser curvature 87.7 per cent, of the greater curvature 96 per cent and of the anterior wall 100 per cent.

Terapevtichesky Archiv, Leningrad

8: 1-142, 1930

*Alkali Reserve in Blood in Association with Development of Cardiac Decompensation. N. A. Kevdin and F. P. Lopatschuk.—p. 3.
Study of Pneumopericardium and Pyopneumopericardium. A. A. Gerke.—p. 17.
Secretion of Chlorine and Hydrochloric Acid by Stomach Glands and Influence of Histamine on This Secretion. B. I. Martsinovsky.—p. 27.
*Lambliasis Associated with Diseases of Gallbladder and Liver and Its Treatment. L. M. Georgievskaia.—p. 41.
Biochemical Characteristics in Constitutional Types of Men. F. M. Ganskau.—p. 49.
Indican and Xanthoprotein Reactions in Blood as Methods of Determining Functional Diagnosis of Kidney. K. Zamyslova.—p. 63.
Amount of Lactic Acid in Blood After Administration of Sugar in Tolerance Test. E. M. Gelshtein and M. I. Frankshtein.—p. 77.
Clinical Study of Erythrocyte Lipase. I. Bazilevitch.—p. 95.
Clinical Description of Rheumatic Polyarthritis: Purulent Processes in Goiter. A. M. Koritsky.—p. 103.
Etiologic Significance of Bacillus Typhi-Abdominalis "Typus G." L. K. Viktorov and G. Y. Sinay.—p. 119.

Alkali Reserve in Blood in Association with Development of Cardiac Decompensation.—Kevdin and Lopatschuk examined the blood of thirty healthy persons and of eighty-two persons with heart disease to determine whether or not there is any association between the condition of the heart and the amount of alkali reserve. In the majority of the normal cases the alkali reserve varied between 48.1 to 60.5 per cent of carbon dioxide, but sometimes it fell lower than the limit of Van Slyke and attained 42.4 per cent. In the patients with heart disease, when the heart is in a state of decompensation, the alkali reserve is often normal or nearly so. Though in some cases hypocapnia was present, its development was not only dependent on the condition of the heart but on that of other organs, especially the kidneys and the liver. In decompensation of the heart there is often a condition of hypercapnia rather than a condition of hypocapnia. This leads to the conclusion that it is impossible to judge the functional capacity of the heart by the alkali reserve determined in a state of relaxation and rest. After exhaustive physical exercise, the alkali reserve diminishes in most cases and increases in a few. In patients with cardiac decompensation there is a decrease in the alkali reserve, which persists longer than in healthy individuals, after the same amount of exercise.

Lambliasis Associated with Diseases of Gallbladder and Liver: Treatment.—Georgievskaia reports the results of a study of 167 cases of acute hepatitis, in 17 of which *Lamblia intestinalis* was found. The severity of the infestation is largely determined by the resistance and general condition of the patient and the acuteness of the attack of hepatitis. In cases of lambliasis, the treatment that gave the best results was found to be the administration of magnesium sulphate and neoarsphenamine.